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Evaluation of the IRS System of Projecting Enforcement Revenue
(1990 Update)

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Evaluation of the IRS System of Projecting Enforcement Revenue

(1990 Update)

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This report surveys the history of the IRS method of projecting the amount and timing of revenue that results from its enforcement activities, discusses the major criticisms of the present method, introduces an "interim" method of estimating revenue arising from Examination initiatives, evaluates the data used to monitor Collection yield, and sets forth numerous improvements that are planned or under way. This version of the report is an update of the November 1989 version—adding the material on Collection and including various clarifications and updates to the original material.

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Preface to the 1990 Update

This report was first published in November 1989. Since that time, we have conducted further research concerning the basis of IRS enforcement revenue projections, and the Service has implemented many of the recommendations made in our first report. We felt that it would be appropriate to update the report to include our new findings and to document the progress.

Aside from making a number of clarifying improvements to the original text, we have included three kinds of change in this version: *(1)* We have added a new chapter (Chapter IV) that discusses our evaluation of the Collection Yield Report. (This could not be included in the original report since the masterfile computer runs took several months to prepare, process and analyze.) *(2)* The original text is annotated with updates, as appropriate—especially concerning many of the recommendations we made in the original report. (These status reports have the form: **[Update: ...]**). *(3)* We have added a few more entries to the glossary—particularly relevant to the Collection material presented in Chapter IV.

Executive Summary

Considerable attention has been focused recently on the way IRS estimates the revenue it expects to generate from its enforcement activities—especially from "revenue initiatives," which expand enforcement staffing. Since initiatives represent significant departures from normal trends, the additional revenue arising from them must be estimated separately from other receipts. IRS estimates of initiative revenue are, therefore, included explicitly in the budget estimates of total receipts. Congress is also interested in evaluating the revenue-generating effectiveness of these initiatives once they take place—raising the need not only for accurate projections for proposed initiatives, but also for accurate estimates of the results of past initiatives.

As the IRS methods for estimating enforcement revenue have been scrutinized (not only within the Service, but also by the Office of the Secretary of the Treasury, OMB, CBO, and GAO), numerous questions, misunderstandings, and criticisms have arisen. The purpose of this report is to clarify the present "system" of estimating enforcement revenue, to respond to the major criticisms of the present system, to present an "interim" method of estimating revenue arising from Examination initiatives, and to explain what will be done (and is being done) to improve our estimating methods.

We have reviewed IRS's estimates of revenue from expansions of Examination activity. It is clear that those estimates understate the time needed to realize direct benefits under our current practices for implementing expansions. It appears that positive net revenue flows begin in the third year of an initiative. However, it is also clear that the long-run revenues from expansions of our current Examination program substantially exceed their cost. If we think of the first two years of negative cash flow as an investment, then that investment has an annual rate of return of about 75 percent over a ten-year period.

[Update: We have also evaluated the basis for Collection's revenue estimates—the Collection Yield Report. Although we have identified several ways this report should be improved, we found that it overstates enforcement collections only slightly. We have added a discussion of this topic as Chapter IV in this version of our report.]

This study has identified several additional ways IRS can improve its revenue projection methods. These improvements will include: tabulating actual enforcement data from the masterfile and from the databases maintained by the various enforcement functions; improving the documentation of the general methods used and of the specific assumptions underlying any estimate; improving the forecasting capability of the models used in the various functions for estimating enforcement yields, or creating new models specifically dedicated to forecasting yields; and developing a multi-year "input-output" model that will coordinate the yield forecasts of the various enforcement functions.

Based on our experience with the recent revenue initiatives and on the findings of this report, we have also identified several areas in the management of our enforcement activities that we plan to improve—relating both to the implementation of revenue initiatives and to the management of all our enforcement activities. The goal is to improve cost-effectiveness in ways that had not been apparent in the past. Therefore, revenue projections for future initiatives will reflect improvements both in the estimating methodology and in the productivity of our enforcement programs.

Introduction

The Internal Revenue Service (IRS) has primary responsibility for administering the federal tax system. Since this is a self-assessment system, almost everything IRS does—whether it be the expeditious processing of payments and refunds, the presentation of the tax laws and regulations in a host of forms and publications, or the assistance we give to taxpayers seeking answers to their specific questions—is in some way related to fostering voluntary compliance with the tax laws.

Another way IRS seeks to promote voluntary compliance is by maintaining a credible deterrent to noncompliance. Although we have no way to measure it, it is probable that this deterrence results in more revenue than results directly from the enforcement itself. (There are undoubtedly many reasons why taxpayers comply to the extent that they do, but it is likely that many base their compliance—at least in part—on their fear of being caught by IRS, having to pay penalties, or being subjected to IRS collection powers.) The need to reduce the budget deficits, however, has focused new interest on the direct revenue-generating capabilities of IRS enforcement. This, in turn, has brought under increased scrutiny our methods for estimating enforcement revenue.

This document: *(1)* explains the nature of the IRS system for estimating enforcement revenue and how it has developed; *(2)* describes the many criticisms of the present system that have been made both from inside and outside IRS, providing responses to those criticisms; *(3)* presents an "interim" method of estimating direct revenues generated by an expansion of Examination staffing; *(4)* evaluates the basis for estimates of Collection yield; and *(5)* discusses other specific actions that will improve the system. A separate chapter is devoted to each of these topics. The appendices describe in greater detail the present resource allocation and revenue projection methods used by the various enforcement functions. **[Update: The Examination methodology now includes use of the "interim method," which is presented in Chapter III.]** A comprehensive glossary is also included to aid the reader's

understanding of the terms and concepts used in this report and in the broader field of income tax compliance and enforcement.

Chapter I

Evolution of the IRS Revenue Projection System

Until FY86, estimates of IRS enforcement revenue were not itemized in the budget. This revenue was included with all other receipts. IRS estimated enforcement revenues as part of its resource allocation process, but these estimates served only to guide the evaluation of our enforcement activities, and the planning of future activities. Recently, however, IRS estimates of the revenue arising from its "initiatives" have been incorporated in the budget estimates of total receipts, which are developed by Treasury's Office of Tax Analysis (OTA). This has focused attention on the way IRS makes these estimates.

The IRS method of estimating enforcement revenue has developed gradually, and is continuing to improve. As our ability to target pockets of noncompliance grew, so did our ability to estimate enforcement revenue. The estimating process evolved from hand calculations based on past results to sophisticated computer models.

A. IRS Enforcement Functions

The major IRS activities involved in the enforcement process are: Examination, Collection, Information Returns Program (IRP), Appeals and Tax Litigation.[1] These activities are very interrelated, as depicted in Figure 1. Each has developed its own resource allocation process and corresponding yield estimating techniques. These range from the very simple to the very complex.

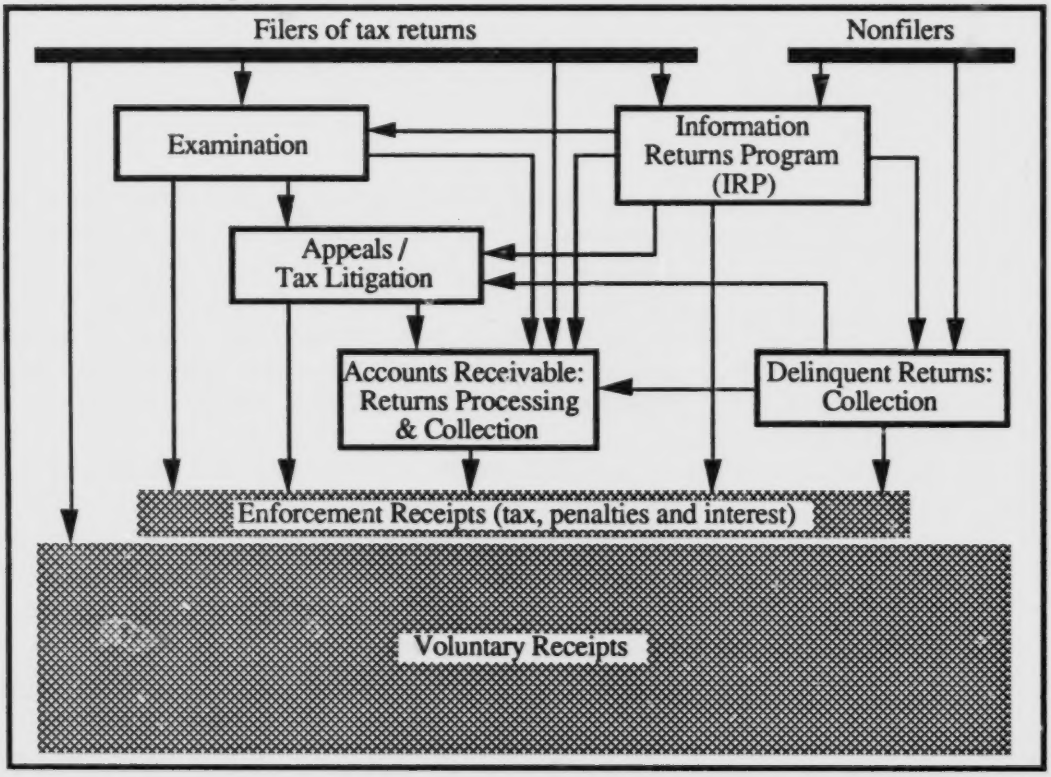
It is important to remember that, in general, revenue derived from IRS enforcement actions is captured in OTA's overall receipts forecasts included in the budget—even though OTA does not estimate enforcement-related receipts

[1] Appeals and Tax Litigation are not involved in enforcement actions *per se*; they simply ajudicate disputes arising from proposed tax adjustments. However, enforcement revenue estimates must reflect the extent to which this ajudication process assesses less in tax and penalties than is originally proposed; they must also reflect the additional time required to assess tax in appealed cases.

separately. IRS estimates of enforcement revenue play two important roles, however. First, since they are program-specific, they are used to support budget requests and as one way to evaluate program performance. Second, the budget estimates of revenue arising directly from enforcement initiatives have been based on IRS estimates since the data on which OTA's estimates of total receipts are based reflect historical levels of both voluntary payments and enforcement revenue and hence cannot account for significant changes in enforcement activity. Even if total enforcement yield were estimated separately for the budget, Congress would presumably still be interested in how well particular initiatives have met their revenue goals, so initiative revenue would still need to be estimated separately from other enforcement revenue.

The sections that follow describe both the operations and the current revenue estimating methods of the major enforcement functions. (Refer to Chapter II for a discussion of the criticisms of the present system, and to Chapters III through V for discussions of improvements.)

Figure 1. Interrelationships Among Major IRS Enforcement Programs and Receipts



Examination

A major breakthrough for IRS enforcement came in 1971 with the systematized application of statistical methods for discriminating between the returns of compliant and noncompliant taxpayers. Most types of returns are now given a "DIF" score as they are processed, based on the information on them. (DIF is short for discriminant function.) Generally, those with high DIF scores are selected for audit, with the result that much more noncompliance is caught than would be the case if returns were selected randomly.[2] In FY88, about 60 percent of all returns audited were selected on the basis of their DIF scores or because of the DIF scores on related returns.

Given our ability to target potentially noncompliant taxpayers in this way, our examination strategy is to maintain certain minimum audit coverage in each class of returns (to foster voluntary compliance), to support certain special examination programs as necessary (e.g., cases dealing with tax shelters or windfall profits, or those chosen for TCMP audits), and then to target examinations such that the expected yield for every dollar of cost is greatest (subject to constraints on program expansion, etc.). Our strategy is *not* just to maximize direct enforcement revenue; our intent is to maximize *total* revenue—voluntary compliance plus direct enforcement revenue. (We currently have no method for quantifying the indirect effect of audits on the voluntary compliance of the general population, so we do not know for sure whether we do maximize total revenue. In the absence of such a capability, however, it is reasonable to assume that maintaining at least a modest audit presence in each class achieves our objective.) Examination revenue estimates reflect this strategy.

Examination planning and revenue estimating are both done using the Examination Resources Allocation Model, which was developed in 1975, and updated in 1981. (Refer to Appendix I for a more detailed description of this model.) It is based on marginal yield curves (developed from TCMP and operational data, and adapted for operational use) that predict the yield from the next audit within a feasible range of audit coverage. (These curves exhibit declining marginal yields as audit coverage increases.

2 The DIF formulas are developed from the Taxpayer Compliance Measurement Program (TCMP) database—the results of thoroughly auditing a probability sample of returns.

This reflects the power of the DIF formulas to discriminate between high-yielding cases and lower-yielding ones, allowing us to audit the highest-yielding returns at any level of audit coverage. Note that if we had no effective way to rank returns, our selection of returns for audit would be random, and expected marginal yield would be constant at the average yield for the class in question.)

The model is programmed to allocate staffing to the various audit classes so as to maximize direct yield (net of costs), subject to the constraints on staff expansion (or contraction) and minimum audit coverage mentioned above (and, perhaps, specific management judgments).[3] Apart from these constraints, maximum yield is achieved when the marginal yield-to-cost ratio is the same for all classes of returns. (In other words, unless we are constrained to do so,[4] it makes no sense to allocate an additional staff year to audit returns in one class if the expected yield from those audits is less than would be expected if the additional staff year were allocated to another class.) For evaluating marginal yield-to-cost ratios, we assume that, within a given audit class, the marginal cost (the cost of examining one more return) is constant for all levels of audit coverage—that is, it is the same as the *average* cost observed operationally.

The result of equalizing yield-to-cost ratios across classes (subject to the stated constraints) is an "optimal" audit coverage rate for each class. The model converts these coverage rates to the corresponding number of returns and to the number of staff years required to audit those returns. It does this using the most recent information concerning the number of returns filed and the number audited per staff year in each class. In addition to staffing and yield information, the model produces a variety of related estimates for planning and management purposes.

The staff year requirements and yield estimates for Examination's special programs are not determined by this optimizing procedure. Examination assumes that marginal yield in these programs is constant in a given year (because there is no method like DIF for ranking these audits). Therefore, yield estimates for these programs are based on the most recent average yield figures available.

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3 Note that the "yield" that is maximized in this way is estimated assessed tax and penalties. To the extent that the ratio of eventual receipts to assessments varies across classes, this process does not maximize receipts.

4 Note that the minimum coverage constraint is voluntarily self-imposed by IRS.

The output of this planning process is not the official plan for the year. Rather, it is the basis for budget estimates and, subsequently, detailed discussions between National Office and the regional offices, which take into account all of the many factors that are unique to each district. These discussions result in the final work plan—an agreement as to the number of staff years to allocate to each audit class in each district. (Until recently, this plan focused on the number of completed examinations anticipated, rather than the number of staff years to be realized. The change reflects Examination's desire to place operational focus on managing the examination process, rather than on reaching a single goal of closed examinations for the year. Furthermore, as the year progresses, operational considerations—e.g., budget cuts—may require deviations from the plan. Consequently, even this final plan may not be strictly followed in the districts; it is a guide. District managers have the freedom to "fine tune" their plans as the year progresses. In the aggregate, however, the actual allocation of staff years should resemble the final plan.)

Since Examination's planning model is based on a modified revenue-maximizing strategy, it produces not only the "optimal" allocation of staff, but also an estimate of the corresponding enforcement yield. This yield is the amount of additional tax and penalties that examiners will likely recommend as a result of the planned examinations.[5] However, for any given year, less than the entire recommended amount is eventually assessed, and less than the total assessed amount is eventually collected. Of the total amount recommended each year, about 80 percent is appealed by taxpayers (representing only about 14 percent of the returns examined). In such cases, the Appeals and Tax Litigation functions determine the amount of tax and penalties that is ultimately assessed. Even when a taxpayer agrees to an assessment, however, it is not always collected in its entirety (e.g., when the taxpayer is unable to pay the liability). For these reasons, the amount of recommended yield predicted by the planning model is translated into corresponding estimates of the amounts of revenue that will eventually be assessed and collected. The present method of translating from recommendations to collections is based on a study of examinations that were completed in FY72. **[Update: Since the publication of the first version of**

[5] Total yield is net of refunds, or "overassessments," which are paid back to taxpayers following examinations which reveal that they paid too much tax.

Publication 1501 in November 1989, we have used the "interim method" described in Chapter III to accomplish this.] As part of the Audit Integrated Reporting System (AIRS), the disposition of these examinations was tracked through the appeals/litigation and collection processes, allowing analysts to develop adjustment factors to estimate (by class) assessments, interest and collections from recommendations, and to estimate the flow of these receipts by fiscal year.

Appeals/Tax Litigation

When taxpayers wish to dispute the recommendations of IRS examiners, they usually do so either through an administrative appeals process, or through the courts. In either case, the amount finally assessed may range anywhere from zero to the full amount of tax and penalty recommended by the examiners, plus interest.

The Examination function accounts for this activity in its own revenue estimates. It does this using the factors derived from AIRS, as described above. **[Update: The AIRS data have been replaced by the "interim method" described in Chapter III.]** Recently, however, the appeals/litigation function has conducted revenue initiatives independent of those occurring in Examination and other functions. The purpose of the Chief Counsel[6] initiatives was to process some of the cases in their inventory that had been building up (such as those dealing with tax shelters), so that they would be closed sooner than they otherwise would be. This acceleration of assessments (and, therefore, collections) could not be accounted for in Examination's revenue estimates, so Counsel began making its own revenue estimates for these initiatives in FY87.

Chief Counsel projects its revenue initiative yield by using average assessment and productivity rates from recent historical data. To estimate the actual revenue effect of a completed initiative, they have compared actual results for the initiative year with those of the prior year(s). (See Appendix II for a more detailed description of this method.)

Information Returns Program (IRP)

The information IRS receives from third parties (such as employers and banks) about the income and

6 Both Appeals and Tax Litigation fall under the jurisdiction of the IRS Chief Counsel.

expenses (such as mortgage interest) of particular taxpayers is used to detect both taxpayers' not reporting all of their tax liability on their tax returns, and their not filing returns at all. The Underreporter Program operates in conjunction with the Examination function to recommend additional amounts of tax and penalties that are due from filers of tax returns. The Nonfiler Program works with the Collection function to identify (and assess) the tax liabilities of taxpayers who do not file required returns. In both programs, cases are selected in the descending order of the amount of tax at issue.

Revenue estimates for the Underreporter Program are based on a computer model similar to the one used in Examination—with the difference that fewer constraints are placed on the revenue-maximizing objective. Generally, the model equalizes the yield-to-cost ratio among the various classes (e.g., underreported wages with potential tax due of $100-$199; and underreported dividends with potential tax due of $200-$499). (See Appendix III for a more detailed description of this model.)

Collection

The activity of the Collection function falls into two categories: Accounts Receivable (A/R) and Delinquent Returns (D/R). A/R deals with the collection of identified outstanding tax liabilities. This collection process includes issuing a series of standard notices to taxpayers who owe money, but focuses mostly on cases in which money is still owed after the notice process has run its course.[7] Most of the receipts that Collection reports are collected in the notice process—at relatively low cost. After this process, the case is generally referred to as a Taxpayer Delinquent Account (TDA), and becomes the subject of a more intensive collection effort. Usually, the first stage of TDA enforcement involves contacting the taxpayers by telephone at an Automated Collection System (ACS) Call Site with the objective of expediting payment of the amount due. If this fails to result in collecting the liability, the case is referred to a Revenue Officer (RO), who tries a variety of methods to collect as much of the amount due as is possible. In an effort to do the most profitable work first, Collection has developed the Resources and Workload Management System

[7] The notices are actually sent out from the service centers by the Returns Processing function, but the collections arising from them are monitored by the Collection function.

(RWMS), which ranks TDAs based on their expected yield (the amount due times an estimated probability of collecting it). Like the DIF score for Examination, this is intended to allow Collection to optimize its efforts.

The Delinquent Returns program seeks to identify taxpayers who do not file required tax returns and to secure the returns and associated payments.[8] One way this is done is by matching incomes reported on Forms W-2 and 1099 with IRS masterfile records of filed returns. Another method for identifying such taxpayers is by identifying "stopfilers" from the masterfile—taxpayers (especially businesses) who have not filed current tax returns, but have filed in the recent past. These leads are pursued first using a series of notices similar to those used for Accounts Receivable. If these notices fail to resolve the cases, the cases are referred to as Taxpayer Delinquency Investigations (TDIs), which generally lead to assessments of tax and penalty, much like those arising from examinations.

IRS had developed a Collection model to assist their planning and revenue forecasting, but this has proved to be too unwieldy. Therefore, they have begun developing a second—more manageable—model (see Chapter V). In the meantime, they generally estimate revenues based on recent results (number of cases disposed of, average number of dispositions per staff-year, average yields per case, etc.), accounting for trends in these data. (See Chapter IV for an evaluation of these data, and Appendix IV for a more detailed description of the methodology.)

B. Coordinated Revenue Projections

In recent years, IRS and the Office of the Secretary of the Treasury have discussed ways to coordinate enforcement revenue estimating. A serious problem was that projected yields (the products of the functional planning models) were not additive, since some were expressed as assessed amounts while others were in terms of collected dollars, and some of the amounts were counted by more than one function. Moreover, the estimated costs of increasing staffing were often incomplete in that they overlooked the costs incurred by other functions in support of, or as a follow-on to, a revenue producing program. It was also

[8] Actually, a significant portion of the yield from the nonfiler programs is for refunds to taxpayers who had not claimed them.

noted that IRS had no method for estimating the on-going impact of an increase in resources. Figure 1 makes it clear that a systematic approach to combining the results of the various programs' estimates was essential.

In response, IRS developed the Programmatic Budgeting Model (PBM) to complement the Service's functional planning and budgeting systems. The PBM was a system of equations and factors that produced estimates of cash flow from enforcement programs, as well as estimates of total program costs. The model eliminated double-counting, measured revenues on a consistent basis (actual dollars collected by year of collection), and identified all support and follow-on costs. The PBM was used during both the FY86 and FY87 budget cycles for the submissions to the Office of the Secretary and to OMB.

The PBM gave way in June 1986 to the Enforcement Resource Allocation Model (ERAM). This model incorporated all of the features of the PBM, and added the capability of estimating the total yield and total cost consequences of a given increase or decrease in staffing—a capability long requested by OMB and the Office of the Secretary. Moreover, it has the capability roughly to optimize resources across programs on a marginal yield-to-cost basis. ERAM is useful in guiding policy choices, but is not central in preparing actual budget submissions because it does not incorporate the level of detail that the individual functional models have.

Examination data from the last ten years or so suggest that their projections of recommendations have been somewhat conservative, after adjusting for changed conditions between the time of budget submissions and the actual execution of the budgets, as well as for several accounting differences. (This is caused primarily because the estimating methods applied to special programs—such as examinations of large corporations and tax shelter cases—are not as sophisticated as the model used for the other classes. Although these programs comprise a small portion of the total number of examinations, they have accounted for more than half of the total yield in the past several years.) On the other hand, if the 1972 AIRS results are no longer applicable—which seems likely—it is conceivable that actual *revenues* could be *smaller* than our forecasts. **[Update: The AIRS data have been replaced by the "interim method" described in Chapter III.]** Work is now under

way and more is planned to refine our revenue estimating capability—especially given the increasing use of special revenue initiatives. (See Chapters III and V.)

C. Estimating the Revenue Effects of Enforcement Initiatives

The importance of IRS estimates of enforcement revenues has increased dramatically in the last several years. In Fiscal Years 1983, 1987 and 1988, Congress appropriated additional funds ("initiatives") to allow IRS to increase its enforcement efforts—primarily to increase direct enforcement revenue. At the same time, IRS has projected additional revenues that it expects to realize as the direct result of the increased enforcement activity—that is, receipts expected over and above the "base" level of enforcement revenue. IRS's revenue projections have been counted separately ("scored," in budget parlance) on the revenue side of the budget.

How IRS Estimates Direct Revenue Arising from Enforcement Initiatives

IRS's approach to estimating the revenue from an enforcement initiative is a simple extension of its method of estimating the total enforcement revenue from its total enforcement program. First, we estimate—from the models described above—the total revenues we expect from our programs, on the assumption that there will be no additional appropriations. Call this estimated "base revenue." [9] Next, we estimate the total revenues we expect from our programs, on the assumption that additional funds *will* be appropriated. Call this "expanded revenue." The difference between these two estimates (expanded revenue minus base revenue) is the estimate of additional revenue we expect from the initiative. Call this "initiative revenue." [10] (See Figure 2.)

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[9] In the absence of planning models, some of the functions have estimated initiative revenue somewhat differently. Also, refer to the glossary for a fuller explanation of how the term *base* is used in at least two different ways.

[10] Note that between the time when the initiative revenue is first estimated for the budget and the time the initiative actually begins—an interval of at least 18 months—many things can occur and new information can become available that will influence our estimate of both base revenue and expanded revenue, and, therefore, initiative revenue.

Figure 2. Fundamental Equation for Estimating Initiative Revenue

Expanded Revenue	—	**Base Revenue**	=	**Initiative Revenue**
(Total enforcement revenue assuming additional funds)		(Total enforcement revenue assuming no additional funds)		(Enforcement revenue that would not be realized without the initiative)

Just as our estimate of base revenue reflects the IRS plan for allocation of the base appropriations, the estimate of expanded revenue reflects an expanded plan for allocation of appropriations including the initiative. This plan takes into account the relationships among the IRS organizations. So, for example, if the expanded plan allocates additional staffing to the function of examining tax returns, it will also allocate staffing to support functions (such as payroll and facilities) and to "follow-on" functions (such as Appeals and Collection). The expanded plan will also take into account the logistic requirements for bringing additional people into the enforcement process (such as additional training and coaching). Finally, the expanded plan may reallocate base resources—for example, from examination of simple tax returns to more difficult returns that yield greater revenue.

Evaluating the Accuracy of IRS Estimates of Initiative Revenue

The recent rise in the importance of IRS's enforcement revenue projections has stimulated additional interest in their accuracy. If, for example, there is a general tendency for the estimates to be ten percent low (which would affect estimates of both "expanded" revenue and "base" revenue), then the estimates of initiative revenue will also be ten percent low. IRS and the Office of the Secretary have launched a project to evaluate and improve the fundamental revenue estimation methods. This project contains the following elements: *(1)* improving the measurement of actual enforcement revenue (our current systems do not clearly separate enforcement revenue from voluntary payments of taxes) **[Update: We are now collecting enforcement data through the Direct Enforcement Revenue Study (DERS) report and the Enforcement Management Information System (EMIS). See Chapter V.]**; *(2)* reviewing, and revising as necessary, the underlying models used by the enforcement functions **[Update: We have completed reviews of the**

Examination, Chief Counsel and Collection revenue estimating methods, and have implemented numerous changes. See Chapters III and IV.]; *(3)* correcting inconsistencies in the treatment of refunds arising from examinations; and *(4)* refining the way the results of the functional models are combined to produce overall IRS estimates. These elements are discussed in greater detail in Chapters II-V.

The accuracy of revenue projections also depends on the accuracy of the estimators' predictions of relevant events. For example, if an estimate is based on the assumption that a pay raise will be funded, but it is not funded, then the appropriation including the initiative will not be sufficient to employ the expected amount of enforcement staffing, and the original budget amount of initiative revenue will not be realized. Some such unexpected events will almost always occur, throwing off the estimates of the base revenue and of the expanded revenue. This raises the question of how we should judge whether IRS's commitment for generating initiative revenue has been met. The IRS answer to this question is simple. Recall that the before-the-fact projections of initiative revenue are made by subtracting projected base revenue from projected expanded revenue. In the same way, after-the-fact estimates of initiative revenue should be made by subtracting "actual base revenue" from actual (realized) revenue.[11] Actual base revenue must be estimated using the values of all relevant factors which would have existed if the initiative had not occurred. For example, suppose staffing were reallocated from enforcement activities to non-enforcement activities, and that this reallocation would have also occurred without the initiative. To get the actual base revenue we re-run our estimating models for the base plan but with the reduction in enforcement staffing. The revenue estimate for this plan is subtracted from actual revenue to get the revenue effect of the initiative (the actual revenue automatically includes the effect of the reallocation as well as the effects of the initiative). This is the amount of revenue generated by IRS enforcement programs which would not have been received if the initiative had not been approved. (Note that this is not the same as counting how much revenue the new hires bring in. Refer to Chapter II for an explanation of this concept.)

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[11] Although it may seem inappropriate to rely on *estimates* of actual revenue associated with an initiative, it is nonetheless necessary for two reasons: *(1)* we can only estimate what would have happened in the absence of an initiative; and *(2)* the revenue arising from an initiative is received over a period of many years. Even if it could be counted separately from base revenue, it would take a long time to know the final answer.

Chapter II

Criticisms of the IRS System of Estimating Enforcement Revenue

A. Data on Actual Enforcement Revenue

The IRS accounting system that monitors receipts does not currently distinguish between voluntary payments and enforcement-related payments. When the Treasury Office of Tax Analysis projects total receipts, they rely on monthly tabulations from this system. Their estimates include both voluntary payments *and* enforcement-related payments, but do not project them separately. Therefore, until the recent revenue initiatives, IRS enforcement functions were not called upon to express their expected yields in terms of additional receipts by year of receipt. Instead, their primary estimates reflect the actual fiscal year output of these functions: recommended additional tax and penalties, in the case of Examination; assessments, in the case of Appeals/Tax Litigation, IRP, and Delinquent Returns; and collections in the case of Accounts Receivable. The current method that translates estimates (or actual results) from Examination, Appeals and IRP into eventual collections by year of receipt is based on the AIRS results for FY72 examinations. **[Update: The AIRS data have been replaced by the "interim method" described in Chapter III. Also, we have begun to tabulate total enforcement receipts in the DERS report. See Chapter V.]**

Since IRS does not currently monitor how much enforcement revenue it receives, and since a subsequent AIRS cycle has not been successfully completed, the 1972 AIRS results have never been corroborated. This lack of actual enforcement revenue data has been the subject of complaints from many who need to use IRS revenue estimates—especially since IRS estimates of revenue initiative yield (after review by OTA) are itemized in the budget. If the 1972 results no longer apply—and they appear not to—IRS's estimates of the base (and therefore, the initiatives) are incorrect. **[Update: See the update notice above.]**

B. First-Year Revenue from an Examination Initiative

In a recent report,[12] the General Accounting Office (GAO) generally supported the view that increasing resources devoted to the examination of tax returns will generate substantial amounts of revenue. However, they argued that ". . . it is unreasonable to expect much additional revenue in the first year of a major staff increase." (See page 3 of the report.) This section deals with the question of how first-year Examination yield should be projected or measured, and problems with IRS's methods.

IRS's projection of additional revenue from an increase in Examination staffing is the net of three separate projections:

1. the revenue arising from the examinations performed by the new staff;

2. the revenue lost (as opportunity cost) because some experienced examiners must temporarily stop examining returns to train and coach the new staff; and

3. the net additional revenue gained by redirecting the base staff's efforts toward higher-yield examinations.

Combining these three elements gives the marginal revenue from the total Examination program made possible by the addition of staff.

Low Productivity of First-Year Agents

GAO has suggested[13] that the third element of our projections should be omitted. That is, the revenue projected for an increase in staffing would be just the revenue produced by the new, inexperienced employees, net of associated opportunity costs. This approach would especially affect the revenue projections for the first few years of a sustained expansion of Examination staffing. The argument for their suggestion appears to be the following:

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12 GAO/GGD-88-119, August 8, 1988.

13 GAO, p. 31.

Premise: the redirection of staff time to higher-yield examinations could be made even without additional staff;

Conclusion: therefore, the revenue associated with the redirection should not be attributed to the hiring of additional staff.

The premise of this argument is correct, but the conclusion is not. IRS *could* change its Examination strategy to maximize direct revenue. However, IRS has followed its current balanced strategy for many years. (Refer to Chapter I and Appendix I for a more-detailed description of this balanced strategy.) GAO recommended in 1982 that a direct-revenue maximizing approach be adopted,[14] but IRS has concluded that its balanced strategy better serves the long-term goal of maximizing voluntary compliance with the tax laws. (IRS prefers that taxes be paid voluntarily rather than through enforcement.) Given this policy choice, IRS chooses not to do more high-yield examinations unless more resources are available.[15]

Under this balanced Examination strategy, IRS closed about 122,000 examinations in FY88 in several low-yield, low-compliance classes[16] with the expectation that the direct yield of additional tax payment on each of them was not as large as on other types of returns that could have been examined instead. The average yield per hour in these classes was in the range of $100-$300 in FY88 compared with overall averages of $550-$700 for individuals, $1,300 for corporations, and $5,000 for the Coordinated Examination Program (CEP). However, these low-yield returns are of types that generally show relatively low compliance rates. IRS believes that compliance rates for these kinds of returns would fall even lower—thus reducing *total* revenue—if taxpayers in these categories were not subject to having their returns audited. This would be the result if IRS followed a strict direct-revenue maximizing rule for allocating its examination resources.

In a year when Examination's staff is not expanding, IRS must nevertheless hire about 1,500 college graduates to replace revenue agents and tax auditors who retire or quit.

14 GAO/GGD-82-34, July 23, 1982, p. 55.

15 Note that GAO's approach of counting only the net effect of the new hires may be more appropriate for the other IRS functions—such as Collection.

16 Approximately 12 percent of all returns filed in CY88 fell into these classes.

In their first three years with IRS, these new agents attend classes to learn tax return examination techniques and procedures, they receive on-the-job training (OJT) by actually examining tax returns under supervision, and they work their own inventory of returns once they have completed OJT. (The returns they examine in their first year are of the types described above and other simple returns.) Some of the agents who examined these kinds of returns the previous year can now work on the next more complicated returns with higher expected yields. The agents who last year worked *those* returns are assigned to examine the next more difficult returns, etc. Thus there is a continuous process of assigning trainee agents to the relatively simple low-yield cases, "pushing up" more experienced agents into examinations of high-yield complicated returns.[17]

In a year when Examination's staff is being expanded, the "class" of new trainee agents will be larger than needed to replace agents who have retired or quit. This means that more than the usual number of experienced agents will have to devote some of their time to classroom instruction and on-the-job coaching instead of examining tax returns. But it also means that the "pushing up," or "migration," process can be accelerated. Agents who would ordinarily have spent another year primarily working low-yield cases (to ensure adequate audit coverage) will be assigned to examine a greater number of more-complex, high-yield returns.[18] Agents who would have worked mostly those cases will be assigned to work the next more complex types of cases, etc. As the migration process accelerates, the number of examinations in all of the high-yield categories will be expanded. But, notice that the first-year trainees will have examined mostly lower-yield returns.[19] Therefore, the marginal yield to the entire Examination program will be larger than the yield on the

[17] An agent would not necessarily be reassigned from exclusively working one type of return to exclusively working another type of return. Rather, the "pushing up" or "migration" may result in raising the proportion of the more complex type in his workload.

[18] However, it is possible for a new class of trainees to be so large that more than the usual number of examinations in the simple, low-yield categories will be built into the Examination plan. This can happen, for example, when there is unusually high attrition through retirements and resignations in the same year that total staffing is being expanded. When additional low-yield audits are added to the plan, the difference between the marginal yield to the Examination program and the yield on cases examined by trainees may be reduced.

[19] This should not be interpreted to mean that first-year trainees do not make a positive contribution to the Examination program. They actually close tens of thousands of examinations, with recommendations for additional tax and penalty eight to ten times as large as their salaries.

returns examined by the new trainee agents.[20] (We are ignoring, for this purpose, the costs of training.)

The foregoing describes how adding staff affects Examination yields under the balanced Examination strategy. It is inappropriate, as shown above, to estimate the effect of expanded staffing by projecting the yields on returns examined by new trainee agents. IRS *could* abandon the balanced strategy. If that happened in a year when Examination's staff was not expanding, the migration could be accelerated: agents who would have examined low-yield returns would be assigned to work returns in high-yield categories. There would be few, if any, examinations of returns in low-yield categories. Therefore, there would be an increase in enforcement yield with no additional resources. But, IRS is committed to the balanced strategy in order to maximize *total* revenue. Therefore, the additional revenue from acceleration of the migration process is properly attributed to the expansion of staff. This is why we must view initiative revenue as the difference between total revenue with the initiative and total revenue in the absence of an initiative. (See Figure 2 of Chapter I.)

This migration of experienced staff into higher-yielding classes of returns may or may not be observed by field managers. One reason for this is that they follow the examination plan when assigning new work; the reallocation of resources—and the reason for it—that is built into the plan could easily be transparent to them. Also, the migration applies only to new examinations, and these generally do not affect examination closing statistics in the same year that they begin. Moreover, the added training burden in the first years of an initiative (and the need to divert experienced agents into teaching roles) easily becomes the focus of attention, masking the crucial difference between resource allocation under the initiative and what it would have been otherwise.

[Update: GAO reviewed their position on "migration" (in GAO/GGD-90-119), and recommended that a more detailed study be undertaken to determine the extent to which "migration" actually takes place.]

[20] Note that if we *were* strictly maximizing direct enforcement revenue, the opposite would be true: the marginal yield to the entire Examination program would be *smaller* than the yield on the returns examined by the new trainee agents. This is because most of the first-year agents would examine the simplest returns that would have been examined anyway; the agents who would have examined these returns would be freed up to examine the marginal (and, therefore, lower-yielding) returns in the more difficult classes.

Cost of Training

GAO states that IRS did not adequately account, in the projections for the FY87 revenue initiative, for the revenue lost because experienced agents must spend time training and coaching new employees. IRS agrees that this opportunity cost was understated in those projections. The "interim" method in Chapter III uses more realistic estimates of opportunity cost. **[Update: GAO (in GAO/GGD-90-77) evaluated the method described in Chapter III that is used to estimate opportunity costs. Although they found no fault with the methodology *per se*, they determined that some of the assumptions were too optimistic to be applied to the 1987-1988 Examination initiatives, which greatly strained Examination's training capacity.]**

Time Required to Complete Examinations

The Examination planning model allocates staff time to examinations of various kinds of returns according to the expected marginal yield-to-cost ratios, without regard to the timing of the yields. For some categories of returns, an additional examiner could be expected to open and close 300 examinations in a year. For other categories, an additional examiner working productively for an entire year might not close any examinations opened in that year. This could be true, for example, in the case of an agent assigned exclusively to large corporation audits.[21] A large part of the revenue from increased staffing arises from the acceleration of the migration of agents so that they examine more complex returns that would not otherwise be examined; therefore, the elapsed time required to complete a typical examination is critical to the fiscal-year timing of the yield from a revenue initiative. This problem has been handled by simple allocations of expected fiscal-year yield between applied time in the base and initiative plans. This allocation would be appropriate if the additional time in each class were applied to work in process, so that cases could be closed earlier, or for larger amounts. (This point was not addressed by GAO.) The "interim" method presented in Chapter III assumes that the additional time is applied to new cases. The resulting recommendations are "lagged" to allow for the fact that most of the new cases will be closed in subsequent fiscal years. **[Update: This method is now the one used.]**

[21] Many examinations of large corporations' returns are done by teams of agents working for more than one year. In such a case, adding a member to the team could result in the case's being closed in an earlier fiscal year than otherwise would have been possible, but even this is not always the case.

Lags in Collecting Revenue from Closed Examinations

After a revenue agent completes the examination of a tax return, some time typically elapses before any revenue is actually collected. When the taxpayer agrees to the agent's recommendations, this lag is ordinarily fairly short (on the order of a few months). Sometimes, however, a taxpayer will simply ignore the examiner's recommendations. In such cases, a set of procedures is initiated to collect the tax due. This can take many months. In other cases, the taxpayer will appeal the agent's recommendation, thus setting in motion administrative and judicial processes, which frequently require several years to conclude.

To estimate actual receipts and to allocate the amounts to fiscal years, IRS uses results from the 1972 AIRS study, which is described in Chapter I. Recent data suggest that the 1972 AIRS figures are not applicable to current circumstances. The "interim" method described in Chapter III is based on the more recent information. **[Update: The Service now uses the "interim method" instead of AIRS.]**

Lags in Filling Positions When Appropriation is Delayed

Another reason why receipts might be small in the first year of an initiative is that we might not be able to hire all of the new staff in time to have them start work at the beginning of the fiscal year for which the initiative appropriation is made, as the estimates assume. There may be several reasons for this. We may not be sure until October 1 (or maybe even later) whether the appropriation will be made. On the other hand, the labor market may be such that we cannot fill the positions as quickly as we would like—if at all. Some initiatives have been preceded by advance hiring authority to minimize these problems (recognizing that the best time to recruit new accounting graduates is in the spring). This has not always been the case, however, and to the extent that it has not, the revenue estimates should have been adjusted.

C. Coordination of Revenue Estimates

The recent revenue initiatives have increased the need for a closer coordination of the revenue estimating

processes—both within IRS and between IRS and OTA. OTA and IRS, for example, need to agree on what portion of IRS estimates of total enforcement revenue should be considered as base revenue, and how much should be attributed to a particular initiative. This is a complicated matter, but one that should become easier with the introduction of data on actual enforcement-related receipts.

Equally important is the need to coordinate the estimates of the several functions. Although this is done to some extent (to translate all yields into compatible estimates of receipts by fiscal year of receipt, and to eliminate potential double-counting of the yields when more than one function is involved), there are several reasons for improving this coordination. One is that the AIRS method of tracking examined returns through the appeals/litigation and collection processes—even if it were up to date—would not generally be able to anticipate the flow through these activities after a significant increase in examinations. The timing and nature of the workload arising from an initiative would most likely differ significantly from normal operations.

Another area needing much better coordination is between Examination and Appeals/Tax Litigation. Appeals officers and attorneys are added to Counsel's staff when an Examination initiative increases the workload being appealed, but Counsel does not estimate the revenue gain from their work since that is accounted for in Examination's AIRS-based estimates. However, Counsel has had its own revenue initiatives—intended to reduce its inventory of tax shelter cases, for example. The revenue from these cases has ostensibly already been included in Examination's estimates, but for later years; the aim of the Counsel initiatives is to collect that revenue sooner than we otherwise would have. This has required Counsel to develop its own estimates for the initiatives, and raises the question of how to reduce revenue projections for future years to account for this acceleration of the appeals/litigation process.

An inconsistency in the recent estimates has been that Counsel's revenue estimates did not include the interest owed on the amounts they assess, while the estimates from the other functions have included interest. This has recently been corrected, however. In the future, accurate projections of interest might eventually be based on tabulations (from the masterfile) of actual enforcement-related payments.

[Update: A detailed analysis of masterfile transcripts is under way to shed light on the timing and interest component of Counsel assessments. Results should be available early in FY 1991.]

D. Statistical Analysis; Planning Models

IRS (particularly Examination) uses its planning models to project enforcement revenue. Although this could conceivably provide reasonable estimates, the actual allocation of staff and the corresponding revenue results are often quite different from the original plan. There are several reasons for this: *(1)* the original plan (on which budget estimates have to be based) is formulated 18 months before the beginning of the plan year, and much can change in that interval; *(2)* operating results used in the original plan are already 6 to 8 months old when planning assumptions are made; and *(3)* even the final plan agreed to at the beginning of the fiscal year in question is more of a guide than a rigid contract to field managers. As a result of these realities and because of the increasing emphasis on the examination of large corporations and tax shelters, Examination has, in recent years, consistently and significantly underestimated the total value of recommended tax and penalties it will yield each year—although actual receipts may be overestimated, since they had been projected on the basis of AIRS. A thorough statistical analysis of the difference between original estimates and actual results is warranted.

One important area that needs to be studied—especially since the AIRS results appear to be out of date—is the timing of receipts relative to the original enforcement actions. For example, most of Examination's yield comes from the large corporate classes, and these examinations often take a very long time to complete. In spite of this, Examination's model currently has no time dimension.

An obvious alternative to the present system—which could help to solve both of these problems—is to develop a revenue forecasting model in each function based on a statistical analysis of time-series data on staffing, inventories, yields, etc. This would not replace the existing staff allocation models, except to the extent that they are now used for estimating enforcement revenue. A straightforward forecasting model that linked inputs to outputs for a

particular function—taking into account trends in important variables—could account for lags (if any) between the time when staffing is expanded and when initiative-related revenue is actually collected. This idea is discussed further in Chapter V. **[Update: Projects to develop such statistical models have begun for Examination and Counsel.]**

E. Planning/Estimation Models in Collection and Chief Counsel

As mentioned earlier, neither Collection nor Chief Counsel uses a theoretically rigorous method for estimating their enforcement yields. Both base their estimates on recent operating results and average productivities instead of any marginal analysis. IRS had developed a Collection model, but that proved to be too cumbersome to implement. Counsel has only recently needed to make revenue estimates, since Examination's projections generally account for the cases that go through the appeals/litigation process.

The Appeals/Tax Litigation programs, and to some extent the Accounts Receivable program,[22] maintain inventories of cases that *must* be worked (so that the statute of limitations does not expire, terminating the cases). As noted above, some of the recent revenue initiatives have been designed to allow these programs to reduce their inventories—accelerating the processing of many cases. This has raised potential for double-counting: the accelerated yield from such initiatives had presumably been included in estimates for subsequent years, and must be subtracted from those years to reflect the revised timing of expected receipts.[23]

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[22] Cases in the RWMS queue that have not been selected for work in the active inventory may *never* be selected. If not selected, the statute will expire on them. To the extent that the infusion of additional resources under an initiative allows us to work such cases, the revenu collected from them is new revenue—not just an acceleration of revenue that would have been collected later.

[23] Actually, if their inventory is too large, they may dispose of many cases too quickly (before the statute of limitations expires), forgoing significant yield. If this is happening, an infusion of more staff should improve the quality of their work and increase their yield on a permanent basis.

F. Documentation

A universal complaint voiced by people outside IRS who use enforcement revenue estimates is that documentation has been lacking—concerning not only the methods and the models in principle, but also concerning the assumptions that underlie specific revenue estimates. Outside users have also complained that estimates change from time to time with little or no explanation. Such a lack of information—together with some seemingly counter-intuitive estimates—has caused some users to question the validity of many IRS revenue estimates. For example, some have questioned the "marginality" of estimates, wondering whether estimates have been based on overall program averages without accounting for declining marginal productivities and yields. This has been a particularly easy conclusion to draw when yield-to-cost ratios have varied widely, and owing to confusion in distinguishing attrition hires from initiative hires.

The need for such documentation has become increasingly apparent with the advent of the recent enforcement initiatives, since the revenue estimates for these initiatives are IRS estimates or are derived from them. Until then, little attention was paid to the accuracy of the estimates or their compatibility from function to function. Now there is considerable confusion about the magnitude of the so-called "base", and how much of IRS's revenue estimates should be attributed to initiatives over and above the base. This is compounded by the fact that, with improving data and with differences between planning assumptions and actual events, IRS estimates of the base have changed over time—with incomplete explanations. Moreover, the term "base" is used in at least two different ways. If, for example, a revenue initiative is proposed for next year, over and above the initiatives conducted this year and last, one would include next year's receipts that are attributable to the first two initiatives as part of the base when estimating the revenue to expect from the proposed new initiative. (Refer to Figure 2 in Chapter I.) On the other hand, if one were to forecast total receipts for next year using recent data on actual receipts, this forecast would not account for the first two initiatives since their results would not likely be reflected yet in actual receipts data. Therefore, the "base" level of enforcement-related activities implicit in such a projection of total receipts would not include *any* initiative revenue. Estimates of revenue generated next year due to the first two

initiatives would have to be made separately, and added to the "base".

The increased scrutiny being given to IRS revenue estimates is serving both to acquaint users of the IRS estimates with the methods used to derive them, and to identify ways of improving those methods. Chapter V outlines many such improvements that are planned or under way.

Chapter III

An Interim Method of Estimating Examination-Related Initiative Revenues

Chapter I summarizes the present method used to estimate examination-related initiative revenues (which is explained in more detail in Appendix I). Chapter II highlights some of the problems inherent in this method—many of which were raised by the recent GAO report. Although our evaluation and recommendations encompass the other IRS enforcement activities as well, it was necessary for three reasons to develop an interim method of estimating examination-related initiative revenue: *(1)* GAO's criticisms were directed only at Examination's methodology, and these required an IRS response; *(2)* in our evaluation of GAO's criticisms, it became clear that Examination's old methodology was out-dated, resulting in optimistic estimates for the first years of an initiative; and *(3)* long-term solutions to these problems (as outlined in Chapter V) will likely take years to implement—primarily due to a lack of specific data. This chapter introduces such an interim method for Examination initiatives that will replace the present (or "old") method, explaining how it differs from the old one, and how it will be refined over the next several months.

Although this interim method confirms GAO's major assertion that Examination initiatives do not yield much revenue in the first year, it nonetheless demonstrates that such initiatives are good investments. If we think of the net costs in the first two years of an initiative as an investment, the annual rate of return on that investment is about 75 percent over a ten-year period.

Note that the interim method only revises the way that revenues arising from an Examination initiative are ***estimated***. It does not change the need for additional resources in the follow-on functions (such as Appeals/Litigation and Collection) that will handle the increased workload produced by Examination; it assumes that these functions will be given all the resources necessary to process this additional work at the normal rate.

Moreover, this interim method for Examination does not presume anything about the relative merits of an Examination initiative compared with initiatives in any of the other functions. In reality, a budget may include initiatives for several functions, in which case the revenue impact of each would need to be estimated separately (recognizing possible interactions, however).

As new data become available or as changes are made in the way Examination initiatives are implemented, this interim method will be adapted accordingly. The assumptions described below relate to the way the initiatives have been executed to date.

A. The Interim Method Compared With the Old Method

The interim method is a significant departure from the old method of estimating the amount and timing of examination-related revenue. Perhaps the best way to compare these two methods is to consider each step of the estimating process in its logical sequence.

Estimated Recommendations

Both methods begin with an estimate of recommendations, which is developed using Examination's planning model (refer to Appendix I).[24] Recall from Chapter I that the amount of Examination recommendations attributable to a revenue initiative (either proposed or completed) is the difference between total recommendations including the initiative and total recommendations without the initiative. The key difference between the two methods' characterization of recommendations is that the old method assumed that the model's predictions of yield pertained to examinations that would be *closed* in the year, whereas the interim method assumes that the recommendations pertain to examinations *opened* in the year, regardless of when they will be closed. Furthermore, the amounts used in the interim method are *total eventual* recommendations associated with the year the examinations are started. Depending on how long examinations take in a given class, these amounts

[24] A long-term solution may include revising this model and/or estimating recommendations with a separate forecasting model, but these advances are outside the scope of the interim method. Refer to Chapter V for a discussion of these and other long-term possibilities.

reflect the application of direct examination time over a period as long as 2½ years. The old approach implicitly assumed that additional examination time made available by an initiative is applied to work already in process, and the interim approach assumes that this does not generally occur. (Specifically, under the old method, Examination assumed that closures increased in direct proportion to an increase in applied time available—even in the first year of the initiative.) The difference in estimated recommendations can be very large—especially since, as for the FY87 initiative, the old method attributed a part of the yield from CEP to the initiatives. For subsequent initiatives, Examination excluded CEP because CEP staffing will be the same at all reasonable resource levels. The interim method continues to exclude Examination programs that are considered base-level programs, such as CEP and tax shelter work.

Transfer of Closed Examinations to Appeals

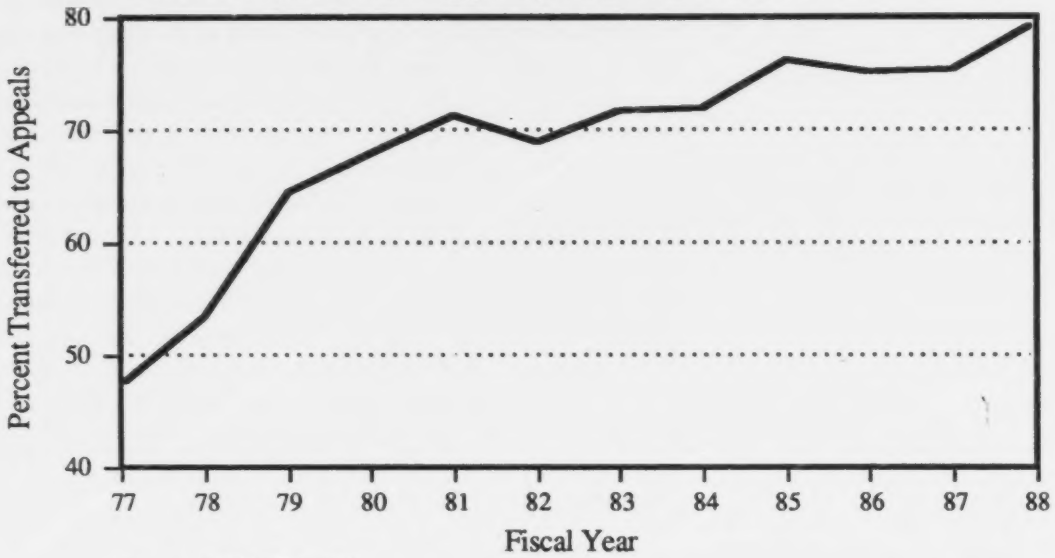
The old method translates recommendations into assessments and collections using factors based on results of the AIRS for examinations closed in FY72. This study tracked every closed examination through to its ultimate disposition over a period of 8 years. (Refer to Chapters I and II and to Appendix I.) The old method estimated total assessments (including both agreed cases and unagreed cases) by using the same ratio of assessments to recommendations as was observed in the FY72 study.

An indicator that the FY72 AIRS results were no longer applicable was the observation that the percentage of recommended dollars that is transferred to Appeals increased significantly between 1977 and 1988.[25] (See Figure 3.) If more Examination yield is being appealed, it was observed, then the fraction of that yield that is ultimately assessed is likely to be lower than is suggested by the FY72 factors.

The interim method estimates assessments in two steps: first estimating the portion of recommendations that is appealed, and then estimating how much of the appealed amount is assessed (which is added to the agreed amount). The appropriate appeals rate from FY88 is used for each of three groups: 62.7 percent for individuals, 68.6 percent for small corporations (those with assets less than $250 million), and 80.5 percent for large corporations (those with assets greater than $250 million). These rates are based on

25 Data are not readily available for years prior to 1977.

Figure 3. Percent of Dollars Recommended by Examination On Cases That Are Transferred to Appeals, Fiscal Years 1977-1988



Source: AIMS Table 90.4

examinations similar to those of recent initiatives. That is, they exclude tax auditors, tax shelters, TCMP and special studies, service center contacts, and CEP—programs that would remain the same with or without any initiative.

These rates are further adjusted, however, to account for the prevalence of partial agreements among cases that are transferred to Appeals. This is necessary because Appeals' recovery rates are reported as the percentage of dollars in dispute—after any partial agreements. Neither Examination nor Appeals/Litigation data allow us to measure partial agreements directly. However, based on a study of CEP examinations closed in FY88, we estimate that partial agreements represent 8.0 percent of the amount recommended on large corporate cases (the most similar to CEP) that are transferred to Appeals, and that the corresponding rates for small corporations and individuals are 7.5 percent and 5.0 percent respectively. (The latter two groups generally have fewer issues in dispute, and therefore less opportunity for partial agreement.)

Appeals/Litigation Recovery Rate

Next, to get from appealed amounts to assessed amounts, the interim method assumes a recovery rate—the

percentage of the unagreed portion of the recommended amount that will eventually be assessed—for each of the three groups of cases. Sufficient data are not available to allow us to calculate precise recovery rates for these groups; we have had to estimate appropriate rates based on the data we do have, which are generally classified by different groups. We have assumed recovery rates of 45 percent for individuals, 32 percent for small corporations, and 25 percent for large corporations. Applying these assumptions to actual Examination accomplishments for FY88 (as a check on the appropriateness of the assumptions), we estimate an aggregate recovery rate of 37.7 percent excluding CEP. This is the rate applicable to initiatives, which do not expand CEP work. The overall average is 28.7 percent including CEP. This figure falls in the range of recent experience as shown in Chief Counsel data. In the case of agreed recommendations (including both full agreements and partial agreements) we assume that 100 percent is assessed.

Given the assumptions concerning recovery rates and transfers to Appeals described above, we are able to estimate total assessments arising from a given level of Examination recommendations. Table 1 shows that for a typical initiative, every $100 of recommendations on examinations of individuals will result in $67.20 of assessments.

Table 1. Calculation of Assessments Arising From Each $100 of Examination Initiative Recommendations, Interim Method for Individuals

Category	Assumptions	Recommendations	Recovery	Assessments
Agreed cases	37.3% of $100.00 =	$37.30	x 100% =	$37.30
Unagreed cases	62.7% of $100.00 =	62.70		
Partial agreements	5.0% of $62.70 =	3.10	x 100% =	3.10
Unagreed portion	95.0% of $62.70 =	59.60	x 45% =	26.80
Total		$100.00		$67.20

The total assessment of $67.20 estimated by the interim method compares with $71.20 estimated by the old method. Application of this methodology to small corporations and large corporations yields corresponding estimates of $56.90 and $44.50.

Interest Calculation

The total amount of an assessment includes additional tax and penalties (calculated above) plus interest that accrues from the time the return was due to be filed. The old method applied a factor (derived from the FY72 AIRS results) to assessed tax and penalties, resulting in an estimated total assessment figure of 108.0 percent of the original recommendation.

The interim method takes into account both the time lags during which interest accrues and the prevailing interest rate—neither of which is necessarily the same as our experience with FY72 examinations. The interest rate that IRS now charges on accounts receivable is 12.0 percent, so the interim method uses this for all interest projections.

A more complex set of assumptions was established to account for time lags in a reasonable way. Three separate phases were accounted for explicitly: *(1)* the time between when the return was due and when the audit begins; *(2)* the time in the examination process; and *(3)* the time between the closing of the examination and the eventual assessment.

1. Pre-examination Lag: The interim method assumes for individuals an interval of one year between the due date of a return and the beginning of an examination. In other words, it assumes that an examination begins one year after the return is due. For small corporations and large corporations, we assume corresponding time lags of 1.5 years and 2 years, respectively. Although these are only assumptions so far, they appear to be consistent with all available data.

2. Examination Duration: The amount of elapsed time necessary to complete an examination also depends on the type of return. Based on averages for FY88, we assumed that examinations take, on average, 12 months to complete for individual returns, and 24 months and 30 months for small corporations and large corporations respectively. We also assumed a distribution of examination time around these averages, and that examinations start at a constant month-by-month rate. These assumptions led us to assume the following distributions of closings for examinations begun in the first year of an initiative:

Table 2. Examination Duration: Assumed Distribution of the Recommendations Arising From a Revenue Initiative, By Year of Examination Closing

	Average duration (years)	Assumed distribution [1]			
		Year 1	Year 2	Year 3	Year 4
Individuals	1.0	16.7 %	66.7 %	16.7 %	0.0 %
Small corporations	2.0	0.0	16.7	66.7	16.7
Large corporations	2.5	0.0	0.0	50.0	50.0

[1] Year 1 is the first year of an initiative.

3. Elapsed Time Before Assessment: For agreed amounts, we assumed a one-month lag between the closing of the examination and the assessment. Since we assume that examinations will open (and therefore close) at a uniform rate each month, this implies that 11/12 (or 91.7 percent) of recommendations agreed to in a given fiscal year will be assessed in the same year, with the balance assessed in the following year. For unagreed (appealed) amounts, we know from Appeals and Tax Litigation data that the average time lag for the three groups is about 1 year, 2 years and 3 years, respectively. Recognizing that not all cases take the average time, we assumed realistic distributions around these averages, as shown in Table 3.

Table 3. Time Lag in Appeals/Litigation: Assumed Distribution of Amounts in Dispute, By Year of Eventual Assessment

	Average time lag (years)	Assumed distribution [1]			
		Year B	Year C	Year D	Year E
Individuals	1	85 %	10 %	5 %	0 %
Small corporations	2	25	50	20	5
Large corporations	3	10	20	40	30

[1] Year A is the year the examination is closed; Year B is the following year, etc.

Applying the above assumptions, the interim method estimates for individuals that, for each $100 of recommended tax and penalties, $100.80 of tax, penalty and interest is assessed. The comparable amounts for small and large corporations are $104.50 and $97.30 respectively. These

figures compare with the $108.00 estimate based on FY72 AIRS results.

Collection Fallout

The old method (based on the FY72 AIRS results) assumed that the amount eventually collected is about 95 percent of assessed tax, penalties and interest, and that of this amount, 74.74 percent is collected in the first year, that 11.58 percent, 4.21 percent, and 3.16 percent is collected in years 2, 3 and 4 respectively, and that 6.31 percent is collected in years 5 and following. This resulted in the estimate that 76.5 percent of recommendations arising from an initiative is collected in the same year that the initiative begins (74.74 percent of 95 percent of 108.0 percent).

The interim method uses recent data from Collection pertaining to first notices arising from Examination. For individuals, these data show that 102.4 percent of the amount assessed on first notices is eventually collected (including additional interest and penalties that accrue during the collection process). The corresponding percentage for corporations is 109.3 percent. The timing of these collections is given in Table 4.

Table 4. Portion of Examination-Related First Notice Amounts That Are Eventually Collected, by Year of Collection[1]

	Individuals	Corporations
Total	102.4%	109.3%
Year a	49.8	87.3
Year b	21.8	8.6
Year c	9.4	0.1
Year d [2]	10.4	6.0
Year e [2]	11.0	7.3

1 Year a is the fiscal year in which the first notice is issued.

2 Total for Years d and e is from Collection; the split between them is assumed.

Note: The total percentages exceed 100 percent because they include interest and penalties that accrue during the collection process. Also, the data do not allow us to distinguish between small corporations and large corporations.

Source: Collection Office of Evaluation and Research.

The Collection data upon which these distributions are based refer to the elapsed time between the date of the first notice and the eventual collection. The interim method assumes that the average first notice is issued half way through the fiscal year, meaning that only the amount expected to be collected in the first 6 months following a first notice is collected in the same fiscal year as the assessment.

Combination of all Assumptions

Combining these assumptions allows us to estimate the amount and timing of collections arising from Examination initiatives. The results are given in Table 5, and are compared with the corresponding factors used in the old method. (Note that the interim method uses three categories of returns. Aggregate factors for the entire initiative can be calculated only for a specific mix of these categories. This is done for a hypothetical initiative in section B below.) Table 5 illustrates three important implications of the interim method relative to the old method: *(1)* eventual assessments of tax and penalties are much *lower* than previously estimated; *(2)* eventual collections of tax, penalties and interest are about *the same* as was estimated under the old method (interest is a much larger component of total receipts); and *(3)* the timing of collections is much *slower* (reflecting longer times in the examination, appeals/litigation and collection processes, and resulting in the much larger interest component).[26]

Opportunity Costs

Offsetting the additional revenue expected with an expanded Examination program is the revenue that will be forgone because IRS will have to use field personnel (who would otherwise be examining returns) to train the new agents. The old method did not account for this.

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[26] The latter two observations might seem to imply that IRS is improving its yield simply by taking longer to process the work. This is not the case, however. If we were to shorten the average time it takes to complete examinations and make assessments, the rate of return on our net revenues would increase more than the 12 percent interest we would forgo. For example, in the 1,000 staff year illustration given in section B below, the rate of return would increase from 75 percent to about 81 percent if we reduced the average time it takes to complete large corporate examinations from 2.5 years to 1.5 years. It is not in IRS's interest to prolong enforcement cases. The main reason why it is taking longer to process the work is that more cases are being appealed.

Table 5. Estimated Assessments and Collections Arising From an Examination Initiative, as Percentages of Examination Recommendations, Old Method and Interim Method

	Old Method[1]	Interim Method[2]		
		Individuals	Small Corporations	Large Corporations
Eventual Recommendations				
• Tax & penalties	100.0	100.0	100.0	100.0
Eventual Assessments				
• Tax & penalties	71.2	67.2	56.9	44.5
• Tax, penalties & interest	108.0	100.8	104.5	97.3
Eventual Collections				
• Tax, penalties & interest	102.4	103.2	114.2	106.3
Collections by FY of receipt				
• Year 1 (year of initiative)	76.5	3.9	0.0	0.0
• Year 2	11.9	22.0	7.2	0.0
• Year 3	4.3	28.5	35.1	18.3
• Year 4	3.2	18.5	24.1	25.7
• Years 5+	6.5	30.4	47.8	62.3

[1] These figures are weighted averages for a typical distribution of results across examination classes.

[2] "Small" corporations are those with assets less than $250 million; "large" corporations are those with assets greater than $250 million.

The interim method makes an explicit estimate of forgone revenue (opportunity costs). This forgone revenue is associated with tax and penalties that would have been recommended on cases that would have *closed* during the training, as well as recommendations that would have eventually been made on cases that would have been *opened* during or just prior to the training period had the trainers not been diverted from examining returns. Our estimate of forgone yield is based on the actual amount of instructor time per trainee, the mix of instructor grades for each phase of training, and the recommendations per hour of examiners in each grade.[27] All assumptions as to the amount and timing

[27] Average yield was used for forgone closures, assuming that instructors would have been examining all classes of returns and that these examinations would be put "on hold" until the instructors returned. Recommendations on forgone closures are lost immediately. To the extent that instructors are given sufficient notice and are able to close their examinations in process before the training, the net loss per trainer should be lower—approaching the *marginal* yield per examination. This is because the trainers would be forgoing new starts (at the margin) both during the training and just prior to it in order to accelerate the cases that are nearing completion. Recommendations on forgone starts are lost later—

of assessments and collections that would have arisen from these forgone recommendations were identical to those used to estimate positive revenues.

The interim method adjusts this estimate of opportunity costs to account for the interaction of an Examination initiative with the "follow-on" activity associated with that initiative. When there is an expansion in Examination, additional resources are provided to follow-on functions, enabling them to handle the additional workload. Specifically, Appeals hires a number of Appeals Officers—who are hired from the pool of experienced examiners. This happens in the normal course of events, as well, but when it happens due to an initiative, the transfer of agents is larger. Examination replaces the transferred agents by hiring new ones, which adds to the training load and the associated opportunity costs. We have accounted for this in the interim method. However, we have not yet explicitly accounted for the lower average productivity associated with this transfer of experienced agents to Appeals; this will reduce yield until their replacements are fully trained and equally productive. (This phenomenon will be accounted for in revenue estimates for any future initiative.)

Significant increases in Examination staffing will also increase the on-going need for training in that the number of attrition replacements will be proportionately higher. The Examination planning model deals with this by applying an attrition factor to the entire staff level.

B. Cost-Benefit Analysis of an Examination Initiative

Under the interim method, an Examination initiative does not realize a net gain to the Treasury until some time after its first year. Table 6 illustrates, for example, the revenue and cost impact of a hypothetical 1,000 staff-year revenue agent Examination initiative, based on the interim method. This example suggests that an initiative begins to have positive cash flows in the third year, and is

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whenever they would have closed had the examiners not been diverted to training. Reliable data do not exist to document the degree to which trainers can accelerate cases in process. It would appear reasonable to assume a mix of 50% forgone closures at the average and 50% forgone starts at the margin (see section D below).

Table 6. Revenue Estimates for a Hypothetical 1,000 Staff-Year Examination Initiative, Interim Method

Year	Total Collections	Opportunity Cost	Net Yield	Direct Cost	Annual Yield to Cost	Net Revenue	Cumulative Net Revenue
Total	4,096.4	527.1	3,569.2	843.4	4.23	2,725.8	
1	1.1	43.4	-42.3	86.3	-0.49	-128.6	-128.6
2	64.9	68.1	-3.2	71.5	-0.04	-74.7	-203.3
3	339.3	105.6	233.7	83.6	2.80	150.1	-53.2
4	357.5	94.7	262.8	86.0	3.06	176.8	123.6
5	482.3	81.9	400.4	86.0	4.66	314.4	437.9
6	531.6	58.0	473.6	86.0	5.51	387.6	825.6
7	579.8	38.7	541.1	86.0	6.29	455.1	1,280.7
8	569.8	21.7	548.0	86.0	6.37	462.0	1,742.7
9	585.9	10.5	575.4	86.0	6.69	489.4	2,232.2
10	584.1	4.4	579.7	86.0	6.74	493.7	2,725.8

The stream of Net Revenue has a present value (at 10%) of $1,315.9 million and an internal rate of return of 75.5% per year.

Note: All money amounts are in millions of 1989 dollars.

cumulatively cost-effective in the fourth year.[28] By the tenth year, however, the cumulative yield-to-cost ratio exceeds 4.2.

An alternative way to view the cost-effectiveness of such an initiative is to evaluate its "internal rate of return"—the discount rate at which the present value of the stream of net revenue (net yield minus direct cost) is zero. (This can be viewed as the average rate of return of the initial investment.) As shown in Table 6, the internal rate of return for the first 10 years of such an initiative is about 75 percent. This is five to eight times the interest rate the government would have to pay to borrow the money if it did not collect it through tax enforcement, which suggests that revenue initiatives are very cost-effective.

[28] Both the revenue and cost figures assume that sufficient additional staff will be added to the Appeals and Tax Litigation programs when needed (mostly in the third year) to handle the increased workload from Examination. If these additional staff are all added the first year (as has been the case with earlier initiatives), then they would be able to work down existing inventory during the first two years—realizing a permanent net revenue gain and offsetting some of the losses to the Examination program in the first two years.

Table 7. Revenue Estimates for a Hypothetical 1,000 Staff-Year Examination Initiative, Old Method

Year	Total Collections	Opportunity Cost	Net Yield	Direct Cost	Annual Yield to Cost	Net Revenue	Cumulative Net Revenue
Total	4,826.5		4,826.5	877.1	5.50	3,949.4	
1	321.4	—	321.4	103.5	3.11	217.9	217.9
2	488.4	—	488.4	82.7	5.91	405.7	623.6
3	509.5	—	509.5	86.1	5.92	423.4	1,047.0
4	518.2	—	518.2	86.4	6.00	431.8	1,478.8
5	502.8	—	502.8	86.4	5.82	416.4	1,895.2
6	498.8	—	498.8	86.4	5.77	412.4	2,307.6
7	497.4	—	497.4	86.4	5.76	411.0	2,718.6
8	496.7	—	496.7	86.4	5.75	410.3	3,128.9
9	496.7	—	496.7	86.4	5.75	410.3	3,539.1
10	496.7	—	496.7	86.4	5.75	410.3	3,949.4

The stream of Net Revenue has a present value (at 10%) of $2,372.2 million.

Note: All money amounts are in millions of 1989 dollars.

We show in Table 7 the corresponding estimates, based on the old method, of revenue arising from the same hypothetical initiative. A comparison of Tables 6 and 7 highlights the impact of the changes implemented under the interim method. The most significant difference is that the old method predicted net positive cash flows starting in the first year (implying an infinite rate of return), whereas the interim method projects net negative revenue in the first two years. The present value in year 1 of the ten-year stream of net revenue is almost twice as large under the old method as under the interim method.

C. Summary of Significant Differences from the Old Method

Use of Recent Data

Rather than using FY72 AIRS data to translate recommendations into eventual collections, the interim method uses more-recent data—mostly pertaining to FY88. The impact that this has on our final estimates is dramatized

by the large increase in the percentage of recommendations transferred to Appeals. (Refer to Figure 3.) The use of recent data on the Appeals recovery rate, the timing of the Examination and appeals/litigation processes, and the timing and amount of eventual collections also served to make our revised estimates smaller and slower than before.[29]

Examination Plan Viewed as Distribution of Starts

Viewing the Examination planning model as pertaining to examinations that will be *started* in the year rather than those which will be *closed* is a major shift in the application of the model. It is appropriate, however, since the model makes no use of information about existing inventory in Examination (which dominates revenue for several years); it assumes a "clean slate." Although this allows us to avoid attributing a share of the "base" to the initiative, it does not mean that initiative yield is derived solely from the new hires. The new hires examine the simple cases, and free up experienced agents to examine higher-yielding (but more complex) cases in other classes, which otherwise would not have been examined. The revenue effects of this "migration" generally occur in later years, however, since the additional examinations are only *started* in the year of the initiative.

Use of Segregated Factors

As mentioned above, for budget purposes, the AIRS-based factors were applied to aggregate assessments, without recognition that some types of examinations have very different collection characteristics than other types of examinations. The interim method makes these distinctions wherever possible, developing separate assessment and collection factors for three groups of examinations that can be attributed to an initiative: individuals, small corporations, and large corporations. Also, these factors exclude activities that are not relevant to initiatives, such as CEP, shelters, and, in many cases, tax auditor work.

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[29] Estimates of assessments are much smaller, but because the time in Examination and Appeals is longer, estimates of assessments with interest (and of ultimate collections) are on the same order as those estimated by the old method. (Refer to Table 5.)

D. Future Refinements to the Interim Method

As its name implies, the interim method is not a long-term solution to the need for accurate revenue projections for Examination initiatives. A plan for such a long-term approach is given in Chapter V. Until that becomes operational, however, we will need to improve the interim method. We will also need to adapt it to account for any changes in the way IRS implements Examination initiatives in the future. Following is a discussion of the most important areas needing further refinement.

Recovery Rates

The interim method applies assumed average recovery rates to all amounts in dispute. This needs to be studied more carefully—based on recent data that are broken down into the same three groups used in the interim method. There may also be reasons in addition to partial agreements that render Appeals' recovery rate incompatible with Examination's transfer to Appeals rate. We have checked several potential problems, but have not found any additional incompatibilities yet.

Elapsed Time in Examination and Appeals/Litigation

The interim method incorporates rough averages of the time examinations are in process: 12 months for individual returns, 24 months for small corporations, and 30 months for large (non-CEP) corporations. We based these rough averages on actual "turnover rates" in FY88. We then assumed average lag times in the appeals process of 1, 2 and 3 years, respectively. We also assumed reasonable distributions for these averages. More work needs to be done, however, to develop more-accurate distributions of these times, which apply to initiative-type examinations. (These distributions need to be of the *dollars* on closed cases, rather than of the *number* of cases.) In the longer term, we may need to add the examination start date (when direct examination time was first applied) as a permanent record on both AIMS and the masterfile.

Partial Agreements

Examination's data give the total recommended amount on cases that are transferred to Appeals, but not all of this amount is in dispute. Appeals' recovery rate is a percentage of the amount in dispute, so it should not be applied directly to the total amount recommended on cases that are transferred to Appeals. As a quick way to check the magnitude of partial agreements, we analyzed all National CEP cases that were closed out of Examination in FY88 (because they accounted for a large share of all recommendations, and because there are relatively few cases to deal with). Preliminary analysis of the CEP cases reveals that about 8.0 percent of the recommendations on cases transferred to Appeals were agreed. **[Update: Further analysis has estimated the partial agreement rate for CEP to be 7.2 percent.]** So, in our interim method, we assumed a rate of 8.0 percent for large corporations, and rates of 7.5 percent and 5.0 percent for small corporations and individuals respectively. This is an area needing much more work—probably requiring that we capture additional data on the AIMS database in both Examination and Appeals.

Opportunity Costs—Marginal vs. Average

The amount of revenue we associate with an initiative is very sensitive to what we assume about opportunity costs. In our 10-year example above, purely average opportunity costs result in a rate of return of about 59 percent, while purely marginal losses imply a rate of about 105 percent.

It is not clear from available data whether the examiners who are temporarily assigned to be instructors consistently put their in-process examinations "on hold" until they return from training (thereby forgoing closures at the average), or whether they (or someone else) often complete the examinations prior to (or during) the training (thereby forgoing starts at the margin). Anecdotal evidence is mixed; the truth is probably some combination of the two. We have assumed a weighting of 50 percent average and 50 percent marginal, based on the judgments of Examination officials familiar with the training process. This assumption is subject to further research and to new methods of estimating opportunity costs. For example, GAO is currently studying this question by surveying revenue agents who were instructors in the recent revenue initiatives. The results of

this study may help us to refine our assumptions. **[Update: GAO's report (GAO/GGD-90-77) determined that some of the assumptions explained in this chapter that are used to estimate opportunity costs are too optimistic to be applied to the 1987-1988 Examination initiatives, which greatly strained Examination's training capacity. Examination is now taking several steps to minimize opportunity costs—both for initiatives and for the general program. Steps being considered include changing the nature of their training, and hiring outside trainers—professors and former IRS revenue agents—on contract.]**

Attrition

Our estimates of the opportunity cost of an initiative account for attrition among experienced agents who are transferred to Appeals. A more detailed analysis would also recognize that the transfer of experienced agents to Appeals would lower overall productivity until their replacements are fully trained and equally productive.

Chapter IV

Evaluation of the Estimating Method for Collection Initiatives

Chapter II indicates that Collection bases their estimates of enforcement yield on recent operating results and average productivity. Discussed in this chapter are some of the concerns about the relevance and accuracy of the data used to produce the estimates. In addition, the findings of an IRS study are presented. The study sought to discover how valid the Collection Yield Report (CYR) is for use in estimating the enforcement yield arising from a Collection initiative.

A. Collection and the Budget Process

In determining its annual budget requirements, Collection decides where to allocate available resources. For the allocation to be effective, many factors are considered, including information about current activities or programs. For example, in the case of A/R, statistics that have a bearing on the planned allocation of resources include the number of delinquent accounts closed, dollars collected, and the status of accounts at the time of collection. Similarly, other programs[30] provide pertinent information such as the number of delinquent returns secured and the associated dollars collected. Based on the number and cost of staff years applied, yield-to-cost ratios are calculated for each program. Taking into account the full extent of its enforcement responsibilities and possible indirect effects, Collection's management then decides where resources should be allocated. (Refer to Appendix IV for details.)

As explained in Chapter I, the projected yields of enforcement functions are not additive. In the case of Collection, yield consists of amounts collected that are often the result of assessments made by other functions.

[30] Examples of these programs include (1) the Delinquent Returns (D/R) program, which identifies taxpayers who have not complied with particular filing requirements, and (2) the Returns Compliance (R/C) program, which identifies those who have never filed tax returns.

Therefore, it is necessary to adjust Collection's estimates of total yield to eliminate double-counting. IRS' Office of the Controller makes these adjustments prior to submitting the IRS budget requirements to the Office of the Secretary.

B . Collection Initiatives

Collection initiatives have generally been proposed to collect more of the amounts of tax, penalties and interest already assessed and included in the A/R program. In projecting the revenue that will arise from these expansions, IRS has relied on the CYR—the primary source of information about revenue generated by the A/R program.

Estimates of Revenue Arising From Initiatives

The term "accounts receivable" includes all amounts assessed but not yet collected. These amounts are in various IRS-defined statuses. An account generally reaches TDA status only after the normal correspondence efforts have failed to collect the amount due. These efforts include sending as many as five notices at specified intervals and answering letters from taxpayers in response to the notices. To estimate the revenue an initiative would produce, Collection has relied on the CYR concerning amounts collected from accounts in TDA status. Using these historical TDA receipts, average productivity is determined in terms of dollars collected per staff year. This ratio is multiplied by the increase in staff years proposed for the initiative to estimate the additional amount of revenue that will be generated. Since TDA accomplishments generally represent the efforts of experienced field personnel, the revenue estimate is reduced to account for the expected lower productivity of the new hires and for the smaller yields anticipated on the additional TDAs that will be worked.

One further adjustment is made to account for revenue that is forgone as a result of hiring additional staff. This opportunity cost, estimated as a percentage of average TDA yield, is the revenue that would have been generated by the experienced revenue officers who are redirected from their usual enforcement activities to train new staff. The percentage is based on the judgement of Collection management. Since estimates of opportunity cost were not determined objectively, additional study in this area is warranted.

Accomplishments of Prior Revenue "Initiatives"

The initiative proposed by Collection for FY 1988 projected that $1.1 billion could be raised by authorizing an additional 2,967 staff years. This amount was estimated by reducing average staff-year yield for TDAs by 36 percent to account for the inexperience of the new revenue officers and the lower expected yield from their workload, and by another 20 percent to account for opportunity costs.

In Figure 4, Collection's actual TDA results and realized staff years are compared for fiscal years 1984-89. Considering the trend in TDA receipts, as documented by the CYR, there is no clear indication that the revenue projections for the initiative were achieved. Part of this reflects Collection's inability to take full advantage of the 1988 staffing authorization (Not all positions were filled and several hundred staff years authorized for the initiative were redirected to Taxpayer Service in 1989). In addition, although Figure 4 suggests that approximately one-half of the revenue from the initiative was received in 1988, the estimate of TDA receipts without the initiative (the base) was probably too low. There is little doubt that the estimate ($500 million *less* than actual TDA receipts for 1987), would have been higher if actual 1987 results had been known. The trends illustrated in Figure 4 suggest that the receipts arising from the initiative in 1988 were modest at best.

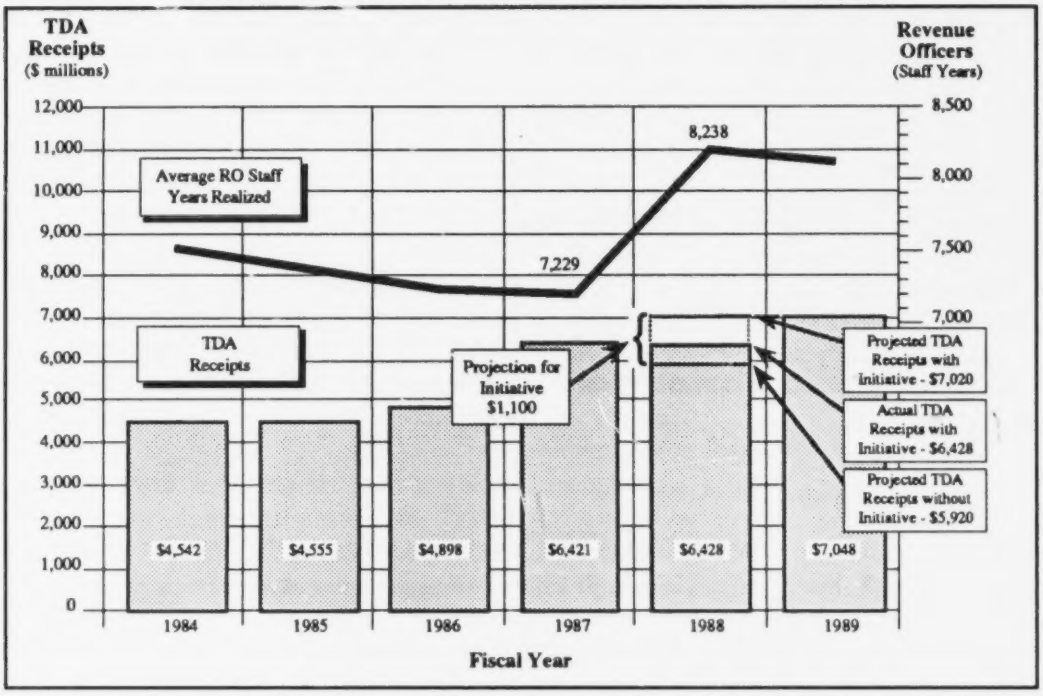
Other problems have been recognized concerning the actual amount of revenue reported by the CYR (discussed later in this chapter). CYR discrepancies, however, would account for only a small part of any inaccuracy in the revenue projections.

Notice Accomplishments

In support of its budget estimates, IRS submits to Treasury selected workload data from the CYR including actual and estimated total dollars collected from TDAs and from notices.[31] These figures are shown in the President's Budget in the section dealing with the Collection function. Revenue collected in the notice process is not considered in

[31] In attempting to collect outstanding liabilities, a succession of notices (up to 3 for businesses, as many as 5 for individuals) may be issued by the IRS service centers prior to a case being designated a TDA. In the past, an individual could have received a maximum of 4 notices. In recent years, however, an additional notice has been included between the 2nd and 3rd Notices.

Figure 4. Comparison of Average Number of Revenue Officers and Amounts Received for TDAs, Fiscal Years 1984-1989



estimating the revenue from an initiative because it is apparently not sensitive to changes in staff levels. Revenue estimates are prepared for notices, but are generally based on average dollars collected per notice. The number and amount of notices that will be issued each year are difficult to predict. Consequently, their inclusion in the budget submission does not appear to be very meaningful.

C. The Collection Yield Report

The CYR was initially designed by Collection in the mid-1970s after identifying which transactions on the masterfiles fairly reflected Collection program accomplishments. The counting of revenue or "yield," as it was called, primarily allowed Collection management to evaluate the organization's performance in administering the A/R program. By tracking yield in each of the collection statuses (notices, TDAs, deferrals, and installment agreements), Collection could more effectively determine the composition and characteristics of its A/R workload. Thus, the information allows Collection management to make decisions concerning program emphasis and direction.

Since the CYR is the only report which was specifically designed to measure the accomplishments of the A/R program, it was preferred over any other source of information for the preparation of budget estimates for that program.

The IRS masterfiles are not always capable of attributing certain payments and credits to actions taken by Collection personnel. Payment and credit transactions are not computer-coded to identify the originating enforcement activity. To overcome this problem (as nearly as possible) Collection developed a routine for comparing the dates and posting cycles of specific payment and credit transactions with the dates of collection statuses. The amounts of transactions identified through this process are used in the production of the CYR.

How Does IRS' Direct Enforcement Revenue Study Report Compare to the CYR?

The Direct Enforcement Revenue Study (DERS) report, first produced for FY89, arose from Treasury's Management Objective on Improving Revenue Estimation. The report was designed to produce IRS estimates of total enforcement revenue. DERS accounts for revenue by type of tax (income, employment, etc.) and by the tax, penalty, and interest components of enforcement receipts. Like the CYR, the DERS reports on a fiscal year basis and uses transaction data extracted from the masterfiles.

The major differences between DERS and CYR are:

(1) DERS reports all enforcement revenue but does not attempt to distinguish amounts by the originating activity. For FY 1989, DERS reported approximately $29.6 billion in enforcement revenue (net of refunds); the CYR reported approximately $23.5 billion of Collection yield.

(2) DERS reports amounts (accumulated as tax, penalty, or interest) attributable to examinations, underreported income revealed by an information document, accounts receivable, and return delinquency. The CYR reports amounts (accumulated as payments or credits) collected from A/R enforcement activities as well as amounts that would not be considered revenue by DERS—for example, the correction of account errors.

(3) DERS and CYR treat reversals differently. When a transaction and its reversal (for example, a dishonored check) post to the masterfile in different years, both reports count the original transaction as revenue/yield during the first year. In the following year, DERS counts the reversal as negative revenue; the CYR ignores the reversal. Reversals are counted on the CYR only if they occur in the same year as the original transaction.

How Is Collection Yield Determined?

In general, Collection yield consists of the amounts of qualified transactions that post to a taxpayer's account on the masterfile. In producing the CYR, transactions will be included only if they post within the report period (fiscal year) and have a posting cycle or transaction date that occurs while the account is in a collection status. If these conditions are met, amounts are accumulated and reported by transaction type and collection status.

Transactions that qualify as yield have been identified by Collection using specific codes. Examples of these transactions include: payments (typically amounts received by check) and credits (amounts applied from other modules in a taxpayer's account or from the accounts of other taxpayers). Federal tax deposits are transactions that do not qualify as yield.

The initial collection status is most often determined by computer analysis of a taxpayer's account. If an amount is owed but unpaid, a notice is generated and mailed to the taxpayer that explains the amount of tax, penalties and interest due; the account is in "first-notice status." If the debt remains unpaid, subsequent notices may be issued; the account's status changes as each additional notice is issued. If an account is unpaid after all notices, it enters deferred status or TDA status, depending on the amount involved. For each change in status, a taxpayer's account on the masterfile is marked with a unique code and date. The account is removed from collection status on the date an outstanding debt is satisfied by payment or credit, or the debt is determined to be not collectible.

In attributing transactions to Collection, the decision to use the transaction date or posting cycle is significant only with respect to payments. The transaction date is the date when payment is actually received by IRS. The posting

cycle is the week when the transaction updates the account on the masterfile. It is possible under certain circumstances for these two dates to differ significantly. For payment transactions, if either the transaction date or the posting cycle of the payment occurs while the account is in a collection status, the payment is considered "yield" by the CYR. For credits, only the posting cycle of the transaction is compared to the collection status date. This is appropriate since the posting cycle and date of a credit transaction are the same.

Analysis of the Data Used in Producing the CYR

A major goal for this evaluation was to determine whether the CYR accurately reflects revenue and, if not, whether improvements can be made that will allow the report to do so. The reason for this effort is to ensure accurate and reliable budget estimates of the revenue produced by Collection—especially revenue relating to an "initiative."

Representatives of Collection and the Research Division identified various scenarios in which *(1)* amounts would be counted as yield by the CYR program even though they did not represent revenue to the Government, or *(2)* amounts of revenue would not be counted by the CYR. To confirm the existence of these conditions on the masterfile, Research and Collection reviewed transcripts of a sample of accounts that had transactions included in the CYR. After analyzing the transcripts, it became apparent that there are three scenarios in which the yield determined by the CYR program *exceeds* the amount of revenue actually received.

The first scenario is when a payment is applied to an account in collection status but has a transaction date that is prior to any collection status. This can happen when the original payment is posted incorrectly—possibly the result of applying it to another tax year or to another taxpayer's account. Upon correction of the error, the payment is posted to the proper account and the masterfile is updated. If, during the time needed to correct the error, the account was coded in a collection status, the payment would be counted as enforcement revenue. It should not be considered enforcement revenue, however, since the payment was made voluntarily and timely.

A second scenario is when previously counted yield is not offset by the amount of yield that is refunded/transferred while the account is not in a collection

status. Potentially, this could result in double-counting yield if such an amount is transferred into an account in delinquent status.

Finally, reversals of previously counted yield are being disregarded if they take place after the CYR report period ends. One example of this is a dishonored check, the amount of which is counted as yield in a prior year. In the year following receipt of the bad check, the previously counted yield is not reduced.

The Impact of Non-enforcement Transactions on the CYR

To determine the impact of such transactions on the determination of "yield," the original[32] CYR was compared to a version of the CYR that was modified to eliminate these problems. Three consecutive years' reports were produced for each version of the CYR using the same data. This was considered potentially useful for identifying any aberration that might exist in reporting yield from year to year. Both versions of the report were produced from the individual and business masterfiles.

Observations

As shown in Table 8, the only significant percentage difference between the reports was in the determination of notice yield, especially First Notice yield. For this status in FY89, the CYR yield exceeded revenue as determined by the modified CYR by $1.356 billion or 16.6 percent (see columns 8 and 9 for FY89). In terms of the percentage of total overstated yield, overstated First Notice yield accounted for 81.4 percent (see column 10). Overstated yield associated with all other (TDA, deferrals and installment agreements) statuses combined varied between 3.5 percent of total overstated yield for FY88 and 5.0 percent for FY89.

In looking at the overstated yield by status, one sees that, with the exception of Fourth Notice yield in FY87, the percentage differences remain fairly constant from year to year. This suggests that during this period there were no significant changes in how yield was determined. In FY87, the share of overstated yield associated with Fourth Notices,

[32] It was necessary to make a slight change to the programs producing the original CYR (for this test) to produce, in addition to the report for the current year, reports for the two prior years. Normally, the CYR only reflects current year cumulative results.

Table 8. Comparison of Collection Yield Report with Modified Collection Yield Report, Fiscal Years 1987-89 (Amounts in $ millions)

Collection Status (1)	Collection Yield Report Payments (2)	Collection Yield Report Credits (3)	Collection Yield Report Total (4)	Modified Collection Yield Report Payments (5)	Modified Collection Yield Report Credits (6)	Modified Collection Yield Report Total (7)	Overstated Yield [1] Amount (8)	Overstated Yield [1] As a percent of Modified Yield (9)	Overstated Yield [1] As a percent of Overstatement (10)
FY 1987									
First Notices	$7,967	$1,448	$9,415	$6,901	$1,448	$8,349	$1,066	12.8 %	71.1%
Second Notices	783	107	890	731	107	840	50	6.0	3.3
Delinq. Notices	393	61	454	373	61	434	20	4.6	1.3
Third Notices	970	184	1,154	872	184	1,056	98	9.3	6.5
Fourth Notices	2,440	289	2,729	2,231	289	2,520	209	8.3	13.9
TDA	5,219	904	6,123	5,167	904	6,071	52	0.9	3.5
Deferrals	101	143	244	98	143	241	3	1.2	0.2
Install. Agrmts.	581	116	697	581	116	697	0	0.0	0.0
Total	$18,454	$3,252	$21,706	$16,955	$3,252	$20,207	$1,499	7.4 %	100.0%
FY 1988									
First Notices	$8,355	$1,659	$10,014	$6,694	$1,659	$8,353	$1,661	19.9 %	83.5%
Second Notices	853	101	954	785	101	886	68	7.7	3.4
Delinq. Notices	409	59	468	393	59	452	16	3.5	0.8
Third Notices	1,060	153	1,213	974	153	1,127	86	7.6	4.3
Fourth Notices	2,349	383	2,733	2,262	383	2,645	88	3.3	4.4
TDA	5,588	764	6,352	5,520	764	6,284	68	1.1	3.4
Deferrals	83	161	244	81	161	242	2	0.8	0.1
Install. Agrmts.	722	146	868	722	146	868	0	0.0	0.0
Total	$19,240	$3,426	$22,846	$17,431	$3,426	$20,857	$1,989	9.5 %	100.0%
FY 1989									
First Notices	$8,348	$1,187	$9,535	$6,992	$1,187	$8,179	$1,356	16.6 %	81.4%
Second Notices	904	116	1,020	854	116	970	50	5.2	3.0
Delinq. Notices	470	75	545	455	75	530	15	2.8	0.9
Third Notices	1,013	244	1,257	948	244	1,192	65	5.5	3.9
Fourth Notices	2,475	305	2,782	2,380	305	2,685	97	3.6	5.8
TDA	5,807	875	6,682	5,727	875	6,602	80	1.2	4.8
Deferrals	87	207	294	86	207	293	1	0.3	0.1
Install. Agrmts.	959	193	1,152	958	193	1,151	1	0.1	0.1
Total	$20,063	$3,202	$23,265	$18,400	$3,202	$21,602	$1,665	7.7 %	100.0%

[1] These columns are calculated as follows: (8) = (4)-(7) ; (9) = (8)/(7) x 100 ; (10) = distribution of (8)

was roughly 9 percent more than for the later years (see column 10). For that year, the larger share associated with Fourth Notice yield was offset mostly by a smaller share associated with First Notice yield. It is not immediately apparent why overstated Fourth Notice yield was so different in FY87.

Conclusions

Collection needs to produce better estimates of the revenue it generates. DERS, while significantly better at

accounting for overall enforcement revenue, is not a suitable source of information for estimating the revenue that will arise from a Collection initiative since it does not attribute revenue to the various enforcement functions.

With modifications, the CYR is appropriate for use in estimating revenue generated by the A/R program. Currently, the CYR does not accurately account for revenue. Even though the primary use of the report is to provide Collection management with information about field operations, budget considerations are significant enough to justify revising it to eliminate the non-enforcement transactions it currently includes, which tend to overstate revenue.

In preparing estimates of the revenue from "initiatives," Collection should continue to base the estimates on TDA results.

An ancillary conclusion concerns the preparation of budget estimates. In providing selected workload data from the CYR, a question arose as to the extent that Collection should continue to show yield or revenue for notices. Collection resources are not expended on the notice processes to the same extent that resources are used on TDAs; however, Collection does commit in excess of 3,000 staff years to service center operations, as well as several hundred staff years to Taxpayer Service to handle notice responses. Further, yield from notices does not appear particularly sensitive to changes in Collection staffing. Additional information is needed to determine the relationship between Collection resources that are expended on the notice processes and resulting yield from notices. Also, research is needed to determine the impact of Collection telephone, personal contact, and other enforcement actions on subsequent notice compliance.

Recommendations

The CYR, as revised below, should provide more accurate information for use in estimating and projecting the revenue generated by the A/R program. Recognizing this, Collection has already taken steps to make these enhancements to the CYR.

The CYR should include modified yield (enforcement revenue) as an attachment to the report.

Modified yield is the net of Collection Yield, as it is currently determined, and the amounts on two other attachments described as follows:

- a report of payment transactions with dates prior to the earliest collection status date and
- a report of offsetting transactions that occur subsequent to the reporting period of the original transaction or while a taxpayer's account is not in collection status.

Finally, a study should be initiated to determine the portion of notice yield that is attributable to Collection resources and actions.

Chapter V

Planned Improvements to the IRS System of Estimating Enforcement Revenue

Although IRS has come a long way in its ability to forecast enforcement revenue, much improvement is still possible—both in the short term and in the long term. The improvements discussed below address the external criticisms as well as other problems identified in our internal review of the present system.

A. Compile Data on Actual Enforcement Revenue

- *Tabulate enforcement-related payments from the masterfile*

It is conceptually a fairly simple matter to summarize from the masterfiles all enforcement-related payments made in the recent past.[33] In fact, in response to the need for such data, an internal task force is already taking the necessary steps to create such tabulations on a monthly basis. The first output is expected by September of 1989, and will be broken down by type of tax, by fiscal year, and into sub-totals for tax, penalties, and interest. **[Update: This output—the DERS report—is now tabulated monthly from the masterfiles.]** Future programming may allow the data to be broken down by enforcement function, by tax year of liability, and by the year of assessment. Thus, these tables will provide information on the timing and amounts of payments arising from enforcement-related assessments.

- *Improve the enforcement databases of the separate functions*

Each enforcement function has its own database (or combination of databases) that records the results of its enforcement activities. Generally, these databases are not compatible with one another—partly because they reflect the different kinds of work and different methods employed by the various functions, and partly because there has been no

[33] The Individual Masterfile (IMF) and the Business Masterfile (BMF) are huge management information systems that IRS maintains to keep track of payments and other transactions for every taxpayer.

need until recently for unified revenue estimates. For example, the Appeals function has recently been merged into the Chief Counsel's jurisdiction, joining Tax Litigation as one of Counsel's revenue-related programs. Although their activities are related, these two programs had developed separate databases, which cannot now be combined. Moreover, both of these differ markedly from Examination's database, the Audit Information Management System (AIMS). (Actually, Appeals closes all of Counsel's cases through the AIMS system, which they used to use for their own management information reports. Although this mechanism exists, and could link Examination and Counsel data, this is not now possible because the statistical data from Counsel are no longer subject to the same rigorous error resolution as are the Examination data.) Compounding the compatibility problem is that Counsel uses two units of data: Appeals uses a "workunit" and Tax Litigation uses a "docketed case." Each of these may involve several returns, while Examination tracks each return separately.

Given the increased need to develop coordinated and accurate revenue estimates, each of these separate databases may need to be improved or expanded, and should be made mutually compatible to support a common management information system (MIS) of enforcement data. As a start, Appeals will begin compiling complete and accurate data for its AIMS file, which will be linked with the Examination AIMS files—allowing us to compare the amount assessed on a given case with Examination's recommendation and to monitor the time lag between the recommendation and assessment. Moreover, we plan to record permanently on AIMS the beginning date of examination so we can monitor the time in Examination as well. In addition, the way Examination reports partially agreed cases will be changed so that the entire amount is not shown as being transferred to Appeals. A multi-function study is under way in order to recommend and implement such changes in light of our planning and forecasting needs; these data should serve both planning/management activities and statistical analysis. **[Update: This multi-function effort has culminated in the design and implementation of the Enforcement Management Information System (EMIS), which contains data on enforcement cases from June 30, 1990.]**

B. Improve Documentation

- *Document basic methods*

Each enforcement function will prepare and regularly update a comprehensive description of the methods and models it uses to estimate enforcement revenues. These will include explanations of the various assumptions made and the nature of the data used. These functional documents will be accompanied by a similar document from the Budget Branch of the Finance Division describing how the functional estimates are used to develop overall revenue estimates. (These documents will build on the overviews contained in the appendices to this report.)

- *Document unique assumptions*

IRS will agree with OTA on a standard format for summarizing the unique assumptions that underlie any revenue estimate. This will not only help to clarify the estimate in question, but will also make clear the reasons for a change in an estimate. **[Update: Such a format is now in use, and regular monitoring is improving communication among those involved.]**

C. Improve Functional Models

Even before we develop an input-output model of IRS enforcement activity (as described in section D), the various functions could make significant improvements in the ways they model their portions of that activity.

Examination

Examination will initiate a thorough review of its present planning model, with the purpose of not only upgrading it, but also of developing an overall revenue forecasting model. The review will include the following:

- *Review marginal yield curves*

The recent GAO report questioned several assumptions and methods used in Examination's model. One such question concerned the way the yield curves used in the model are adjusted to conform to the most recent operational results;

the report suggested the need to "test" this method. Rather than testing this adjustment *per se*, the entire method for estimating marginal yield curves will be reviewed—with particular attention paid to making all aspects of the curves reflect actual Examination practices as much as possible.

Moreover, the curves should be used to allocate resources optimally for all new "starts." They should not be viewed as influencing the distribution of examinations closed in a given year (which depends mostly on the nature of that year's inventory). The objective of the "optimal" allocation of starts should be to maximize total *revenue*—voluntary payments plus enforcement collections. Therefore, the yield curves should be expressed in dollars assessed (or even collected)—not just the amount recommended by Examination. The curves should also be net of "overassessments"—the amounts that are refunded to taxpayers when examiners find that they paid too much in tax.

- *Evaluate model assumptions*

  All numerical assumptions—both explicit and implicit—will be evaluated as to their appropriateness, with improvements made as necessary.

- *Formalize allocation rules*

  Examination will formalize its constraints on direct revenue maximization. This will result in consistent and quantifiable rules concerning the allocation of resources to low-yield classes, maximum expansion or contraction in each class, and the allocation of staff to the various special programs.

- *Account for deviations from plan*

  Examination will study the reasons why actual recommendations deviate from the initial and final plans, with a view to explicitly accounting for these factors in the planning model. Even if another model is developed for forecasting revenue, such a study could result in a better allocation of staffing. This may involve accounting for the time it takes to close cases, as well as for district-by-district constraints on resource allocation.

- *Develop statistical projections*

  One way to account for the differences mentioned above is to separate the revenue projections methodology from the planning model. As suggested in Chapter II, perhaps a straightforward statistical projections model (based on actual resources, productivities, yields, etc.) would be more appropriate for estimating the yields (i.e., recommendations by fiscal year of receipt) associated with a particular plan. It might be possible to base such a model on monthly and even district-level data, which would allow us to compile sufficient quantities of data without having to wait many years.

- *Account for opportunity costs*

  Examination will improve the way it accounts for the revenue forgone when experienced examiners are taken off the line in order to train new hires under a revenue initiative. In the short term, improvements will focus on the average vs. marginal question described in Chapter III. The problem inherent in this approach, however, is that opportunity costs, by definition, are not observed. Estimating them explicitly requires that we assume *what would have happened*. In the long term, Examination should avoid estimating opportunity costs separately by making statistically-estimated projections (as described above). This approach would obviate the need to estimate opportunity costs separately because these projections (like the data upon which they are based) would be net of revenue forgone due to training.

- *Replace the AIRS program*

  Even if the AIRS method is not the most appropriate way to project enforcement revenue (see section D below), it would still be useful to replace it. (It is used to monitor operational results and trends—especially the interdependencies of the various enforcement functions.) Rather than track the disposition of every closed examination, however, we could develop from two existing sources the aggregate factors now derived from AIRS. First, AIMS data from Examination and Appeals can be merged to trace the flow of recommendations into assessments. Second, when several years of detailed data on enforcement-related payments have been tabulated from the masterfile (i.e., broken down by enforcement function and by the year of assessment), we will have enough information to trace the flow of

assessments (from all enforcement programs) into actual payments. If we find that we need micro data in addition, we could track samples of closed audits through the Collection Research File (CRF). The CRF, which can monitor any masterfile activity for any sample of returns, could easily be adapted for this purpose.

An alternative might be to establish a servicewide enforcement MIS, as suggested in section A above. Such a system could be based in part on data already collected by the various functions, but would require significant modifications to some of the existing systems. **[Update: This is the approach we have taken, with the introduction of EMIS.]**

Until a long-term replacement for AIRS is available, we will use existing data from Examination, Appeals and Collection to estimate better the factors now being used from AIRS. (Refer to the description of an interim method in Chapter III.)

Collection

- *Develop a new forecasting model*

Collection is developing a new model—the Collection Budget Formulation Model (CBFM)—which will be the primary budgeting tool within the Collection function when it is completed. It will not only be used for the formulation of budget submissions to the Office of the Secretary, the Office of Management and Budget, and Congress, and to do ad hoc revenue estimates, but it will also provide input into the budget execution process, in that it will allocate resources by district and may be able to generate a field work plan. Unlike its predecessor, the Collection Resource Allocation Model, the CBFM will be housed on a microcomputer (rather than a mainframe) and will be extremely user-friendly to allow for rapid access to the data and quick turn-around time on model runs.

The model will be based on data from the following sources:

- Collection Activity Reporting System (CARS)
- Delinquent Returns Activity Reporting System
- Collection Resources & Workload Management System (RWMS)
- District Office Time Reporting System

- Automated Collection System (ACS) Time Reporting System
- Service Center Operating Financial Plan (OFP) Analysis

The required input data will be electronically transferred between these databases and the CBFM.

The model will be able to address the effect of resource changes by function (service centers, ACS and the field) as well as by program (Accounts Receivable, Delinquent Returns and Special Compliance Programs). It will be based on district level data, including inventory, issuances and disposition rates, by RWMS score level, and thus can be run on a district-by-district basis. Based on priorities set by Collection, the model will allocate staffing to the districts, working the cases with the highest expected yield first. Thus, the model's revenue projections will reflect the decreasing marginal yield resulting from the RWMS scoring system. The model will also take into consideration employees' initial training and the "learning curve." Not only will the disposition rate for new (as well as second- and third-year) employees be less than for experienced staff, but the cases worked in the field will be of lesser difficulty (i.e., while experienced staff work cases with the highest RWMS score first, less experienced staff work lower-scored cases).

In the event that another IRS function, such as Examination, plans a budget initiative, the output of all "upstream" functions (particularly Examination and Appeals) will be used as inputs to the CBFM to determine the effect on Collection. These inputs would probably be available by audit class, but Collection does not have separate yield or disposition rates by class, nor does it yet have specific rates for cases coming from Examination as compared to other functions. The average rates for IMF TDA cases and BMF TDA cases would thus be used to cost the Examination initiative and to project its yield.

In addition to being able to estimate the effect of various resource increases on the entire Collection function (e.g., dispositions by type of closure; by function, program and RWMS score level; by dollar and staff hour cost; and by returns secured, dollars assessed, and dollars collected), the model will be able to estimate the resources required to attain specified goals, such as the staff years needed to close a certain number of cases or to achieve a given revenue yield.

- *Collect better data on enforcement revenue*

Presently, some of the "yield" included in Collection's data is not actually enforcement revenue. For example, if a payment is received in full and on time, but is credited to the wrong account, IRS will issue a notice requesting payment on the account to which the taxpayer intended the payment to be applied. When the mistake is discovered, and the correcting entries are made, the amount of the payment may be included in Collection's "yield," but should not be regarded as enforcement revenue. Collection will make the necessary adjustments to allow them to measure enforcement revenue separately from other components of their yield. **[Update: We have completed a review of this problem, and have presented the results and recommendations in Chapter IV.]**

- *Collect data by originating function*

As mentioned above, Collection does not now keep data on the types of activity (e.g., Examination, Appeals, Tax Litigation, IRP, service center adjustments) that lead to cases coming to Accounts Receivable. It is not likely that the collection characteristics of all types of assessments are sufficiently similar to use aggregate statistics—particularly when initiatives and other actions change the "mix" of enforcement activity across functions. Collection will begin keeping and reporting this information as soon as possible—if not for all cases, then for suitable samples tracked by the CRF. This will allow Collection to project total receipts more accurately for any "mix" of enforcement yield from the other functions.

Chief Counsel

- *Include interest*

Chief Counsel will include estimates of interest in all future revenue projections. These estimates may be rough approximations at first, but will be based on better data as soon as possible. **[Update: A detailed analysis of masterfile transcripts is under way to shed light on the timing and interest component of Counsel assessments. Results should be available early in FY 1991.]**

- *Develop a model*

Chief Counsel will develop a multi-year revenue estimating model as soon as possible. Rather than base revenue estimates on a planning model (which they may also need for resource allocation), perhaps they should proceed directly to a statistical forecasting model (as suggested in Chapter II), once they accumulate the appropriate data.

Information Returns Program

- *Account for marginality*

IRP is now planning to upgrade its model to account more specifically for results at the margin. This should be completed within FY89.

D. Develop a Multi-Year "Input-Output" Model

Even if our method of projecting revenues were based on up-to-date AIRS results, it could not account properly for significant changes in enforcement staffing or strategies. This is because the various factors derived from AIRS (e.g., the percentage of dollars recommended that are eventually assessed, and the portion collected in each subsequent year) are based on the relative workloads, productivities and emphases of the enforcement functions involved. If inventories in Appeals are growing, for example, the average time to close unagreed cases is probably increasing, and using previous factors could overstate collections. Such changes are certain to take place between the time AIRS tracking begins for a given year, and the time final results are available for use—on the order of 8 years. Moreover, serious potential exists for double-counting revenue when more than one function is involved in the enforcement—a problem that is particularly troublesome when estimating the acceleration of receipts arising from initiatives designed to reduce inventories in Appeals or Tax Litigation.

We therefore plan to develop a new system for estimating enforcement revenue. This system will reflect the flow of enforcement workload from one function to the next, with each function receiving estimated inputs from other functions, as appropriate, and estimating its own outputs.

(Refer to Figure 1 in Chapter I.) In particular, each functional model will have the following three components: "inputs," "outputs" and a "production function" that predicts the level and timing of outputs that will result from a given set of inputs.

Inputs:

- estimates of the workload generated by other functions (e.g., in the case of Appeals, this would mean estimates from Examination of the number of returns they expect will be appealed—including the recommended amounts Examination expects to be in dispute—broken down by the fiscal years they will be transferred to Appeals);
- known inventory (if any); and
- present and planned staffing.

Outputs:

- estimates of the workload transferred to other functions (e.g., in the case of Appeals, this would mean estimates of the assessed amounts they expect to transfer to Accounts Receivable—broken down by the fiscal years they will be transferred); and
- amounts of tax, penalty and interest they expect to receive from taxpayers (if any)—by year of receipt.

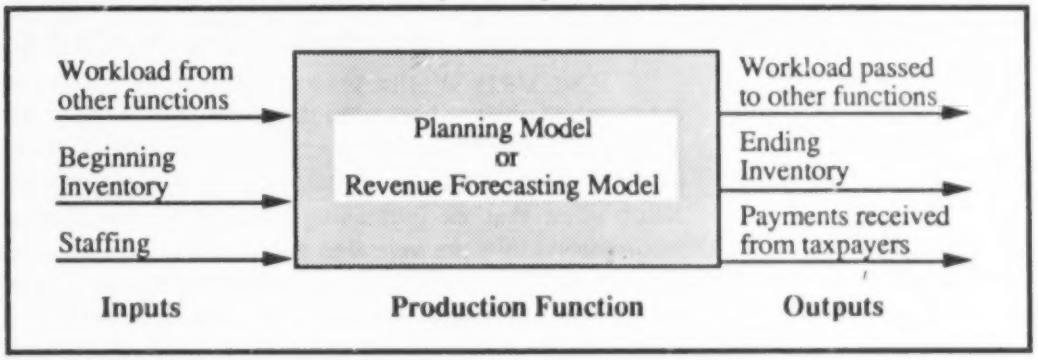
Production Function:

A "production function" models the activities of a particular production process (in this case, the production of enforcement yield) by quantifying how inputs and outputs are linked. For example, this could be either:

- a variation of an existing planning model; or
- a new revenue forecasting model—perhaps no more than a complex equation.

The relationships between these three components is illustrated in Figure 5.

Figure 5. Schematic Representation of One Enforcement Function's Contribution to an Input-Output Model



What we are ultimately interested in is the sum of the amounts the various IRS functions expect to receive from taxpayers, by year of collection (most of which is handled by the Returns Processing and Collection functions). A servicewide input-output model of this process might simply involve the manual sharing of information between the separate functional models,[34] or (if those models were standard computer-based forecasting models), it could be a centralized computer program that incorporates the functional models as sub-routines[35]. To estimate initiative revenue, we could simply run the model once with the initiative included in the functional plans, and once without it included. The difference between the two would be the effect of the initiative.

We could think of such an input-output model of IRS enforcement activity as being analogous to the relationships among the various industries involved in the production of a manufactured good, like automobiles. Just as the mining industry produces iron and coal, and passes these on to the steel industry, which uses them along with other inputs to make steel, which it passes along to the auto manufacturer who makes the cars, so the output of one IRS function becomes the input of another until enforcement revenue is eventually collected.

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[34] This would likely put the last functions in line at a timing disadvantage when estimates are required quickly.

[35] Note that these functional models could be either planning/resource allocation models or statistical projection models; either type could fit into the input-output framework. Statistical models would probably be much easier to combine into a service-wide model, however.

E. Evaluate Possible Managerial Improvements

Our study of the present system of projecting enforcement revenue has raised the question of whether IRS could manage its enforcement activities more effectively—particularly enforcement initiatives. For example, the observation that an increasing portion of examination recommendations are appealed and that a relatively small percentage of those amounts is eventually assessed suggests that we should evaluate the interaction between Examination and Appeals/Tax Litigation and seek ways to expedite the process while assuring correct tax assessments. Other possible innovations might include contracting with outside trainers to do some of the training of new revenue agents (especially when large numbers are hired at the same time), or new ways to decrease the average time that it takes to complete examinations. Several studies are already under way to evaluate the merits of such proposals. Any changes in the management of IRS enforcement activities that result from such innovations will be reflected in corresponding changes in our estimating methodology. **[Update: We are now studying carefully the reasons why certain Examination recommendations are not sustained in Appeals or Litigation. (EMIS will eventually supply us with detailed data that will allow us to evaluate sustention rates on an on-going basis.) We are also re-designing the Examination training program (including contracting with outside trainers, to minimize opportunity costs), and are investigating ways to accelerate the examination process.]**

Appendix I

Examination Revenue Estimating Methodology

Background

Current estimates of the revenue expected from examination programs are the by-products of Examination's planning model, the Examination Resource Allocation Model. The primary purpose of this model is to guide the distribution of enforcement staff across the various examination programs and classes on a year-to-year basis. Since the allocation of staff depends in part on the revenue they are likely to generate, it is natural to use the model to estimate the revenue associated with any proposed plan, but it is important to remember that the model is not intended primarily to estimate revenue.

The model incorporates basic Examination strategy and procedures:

- The basic work unit is the examination of a tax return—not groups of related returns. For planning and management purposes, returns are organized into 25-30 classes, based on the type of return (individual vs. corporate, business vs. non-business, Form 1040 vs. Form 1040A, etc.) and size of income (for individuals) or assets (for corporations). These classes are treated separately in the process of developing the DIF formulas that IRS uses to select returns for examination. The intent of this process is that the classes are reasonably homogeneous in their tax compliance characteristics.

- The results of planned audits are expressed in terms of additional tax and penalties *recommended* by examiners. For revenue estimating purposes, these recommended amounts are translated into assessed and collected amounts by applying reduction factors that were derived from a study that tracked the eventual outcomes of examinations closed in FY72. (This study is called AIRS—the Audit Integrated Reporting System.) **[Update: The AIRS results have been replaced by the "interim method" explained in Chapter III.]**

- Examiners are differentiated by skill level (Revenue Agents, GS 5-13; Tax Auditors, GS 5-11; Tax Examiners, GS 5-7);

the more-complex returns are audited by higher-paid, more-skilled examiners.

- The objective of the allocation of a given level of examination staffing to the various classes of returns is to maximize recommended additional tax and penalties (net of the cost of the examinations), *subject to the following constraints*:

  1. Special programs are fully-staffed (in accordance with management criteria) regardless of the direct revenue consequences.

  2. Minimum audit coverage is ensured for all classes for the purpose of providing a credible deterrent to noncompliance. This constraint is binding in several classes having low direct yield, and is used in the absence of a way to estimate the indirect effect of audits on voluntary compliance. (If we *were* able to estimate this indirect effect, our objective would be to maximize *total yield*—both the direct and the indirect revenue effects of examinations.)

  3. Administrative limits to growth in any one year (for example, the maximum number of new hires that can be trained) restrict the extent to which audit coverage in any class of returns can be expanded. This constraint is binding on the highest-yielding class of corporate returns.

For classes and programs that are not bound by these constraints, the maximum direct yield is obtained by equalizing the marginal yield-to-cost ratio across classes. That is, each additional staff-year should be allocated to the class of returns that is expected to yield the largest amount of additional tax and penalties.

The information that follows provides greater detail on the above points, focusing on the bases of the revenue and cost estimates, other planning assumptions, how revenue from an enforcement initiative is estimated, how assessed and collected amounts are estimated from recommended amounts, and limitations of the planning/estimating process.

Basis of the Revenue Estimates

Special Programs: Included in this category are the Coordinated Examination Program (or CEP; lengthy examinations, generally of large corporations, requiring the coordinated efforts of a team of specialists), the Tax Shelter Program, the Windfall Profits Tax Program, and examinations of Estate, Gift, Employment, and Excise Tax Returns.

General Methodology

Number of returns to be examined: based on most recent operational experience, plus growth factor based on management judgment.

Yield per return: average yield based on most recent operational results.

Number of staff years: based on most recent operational rate (average hours per return over last three years).

Special considerations

CEP: About 48 percent of all examination recommendations come from CEP. The number of returns examined is small, however—just 1,461 in FY88.

Tax Shelters: Projected number of returns closed is based on an estimate of the movement of cases from inventory to closure over the planning period.

Windfall Profits Tax: Same as tax shelters; few cases remain in process.

Estate, Gift, Employment, Excise Tax: Returns are examined so as to achieve desired audit coverage rates to foster voluntary compliance.

Note: Taken together, the above programs account for 18 percent of the 1.2 million examinations that were completed in FY88, 35 percent of the total number of examination staff years, and 72 percent of estimated total yield.

Other Programs: This includes all returns selected on the basis of their DIF scores, as well as large corporations that are not examined under CEP.

Marginal Yield Curves:

We develop marginal yield curves (predicting yield on the next return audited as a function of the audit coverage rate) for all of the income tax classes. These curves are used both for allocating resources and for estimating revenue.

Most of the curves are developed from a database of comprehensive audit results obtained in the Taxpayer Compliance Measurement Program (TCMP). TCMP is also used to develop the DIF scoring system for ranking returns based on probable tax change.

Since returns are generally examined in declining DIF score order, the TCMP cases are ordered in the same way. Average yield curves are then fit by regression techniques.

These average curves are adjusted so that they "predict" the *actual average operating yield* per return at the actual coverage rate.

The corresponding marginal yield curves are derived from these average yield curves, and exhibit declining marginal yield. That is, the yield on the next return to be audited is expected to be less than the yield from the previous one.

For classes not covered by TCMP (Corporate returns with assets of over $10 million), we develop marginal yield curves from operating results.

Staff Year Requirements

The resultant audit coverage rates in each class are first translated into the number of returns to be audited. We then estimate the total direct examination time (DET) required to audit the projected number of returns in each class (using the average time to audit returns during the last 3 years, accounting for class and skill type). From this we estimate the number of staff years required in each class (accounting for staff time other than DET, such as training, leave and general administration).

Basis of the Cost Estimates

The basic assumption underlying our marginal cost functions (which predict the cost of auditing the next return, and which we need for developing marginal yield-to-cost ratios) is that marginal cost is constant within each class at all audit coverage rates. This implies that marginal cost (which we cannot directly measure) is the same as average cost (which we do monitor).

The basic unit of cost is a staff-year. Staff-years are differentiated by employment categories: Revenue Agents (RAs), Tax Auditors (TAs), and Tax Examiners (TEs).

The types of returns examined by staff in these employment categories require different skills. For example, TEs primarily work simple correspondence contacts, TAs primarily audit the simpler individual tax returns, and RAs mainly audit the more-complex individual and corporate returns. The planning model can accommodate any mix of these skill levels within each class.

The average cost for each category of staff-year is determined from the actual cost in the prior year. This cost includes salaries, benefits, and overhead for each staff-year category and class of return.

Other Planning Assumptions

Time available for examination

Not all staff-year time is available for examining returns. We also account for management, training, leave, return screening and quality review. The remaining time, when measured in staff-years, is called *Direct Examination Staff Years* (DESYs), and when measured in hours, is called the *Direct Examination Time* (DET) available to audit returns.

Productivity of expansion hires

We assume an average entry on duty date to reflect that all new employees may not be on board at the start of the year and are not as productive during their first year as in later years.

Productivity increases

We sometimes incorporate assumed gains in productivity expected from special efforts, such as automation.

Estimating Revenue from a Staffing Expansion (Revenue Initiative)

Step 1: Apply the planning model to "base" staffing (i.e., what the plan would be without the initiative):

a. Estimate yields from special programs, as usual.

b. Apply marginal yield-to-cost optimization for all other classes of returns—subject to constraints on minimum coverage and maximum expansion.

Step 2: Apply the planning model to expanded staffing (i.e., the base plus the initiative):

a. Increase special program areas as warranted (based on management judgment and potential yield/cost.

b. Reapply marginal yield-to-cost optimization for all other categories of returns for the new total available staff—again subject to the same constraints. (Note that the new hires may be allocated to examination classes that are not expanded, thus freeing up experienced examiners to audit more complex—and higher-yielding—returns.)

Step 3: On a class-by-class basis, subtract revenue estimated in Step 1 from that estimated in Step 2. The result is an estimate of the additional revenue expected as a result of the expansion.

Estimating Assessments and Collections From Recommendations

The model accounts for the fact that all dollars recommended by examiners will not be assessed, and all assessed dollars will not be collected. It does this using reduction factors developed from the Audit Integrated Reporting System (AIRS). AIRS tracks every examination

closed in a given year through to its ultimate disposition. Tabulations made from these data are used to calculate: the percentage of recommended dollars that will ultimately be assessed; the percentage of assessed dollars that will ultimately be collected; and the timing of the collections (what percentage of total collections is received in each fiscal year following the examination).

The reduction factors now being used were derived from the AIRS results for examinations closed in FY72. Recent AIRS tabulations have been plagued by programming errors—a problem receiving considerable attention. (Refer to Chapter III for an explanation of an alternative method that may be used in the interim.) **[Update: The AIRS results have been replaced by the "Interim method" explained in Chapter III.]**

Limitations of the Planning/Estimating Process

- Planning occurs 18 months before the beginning of the plan year. Numerous developments normally occur before the plan is finalized, which change it significantly.
- Operating results that feed the planning system are six to eight months old at the time planning assumptions are made.
- Results from special programs (having low volumes of examinations but higher yields) have not proved predictable within usual tolerance ranges for larger-volume return classes.
- AIRS data used to estimate collection flow are old and appear to be not suitable for continued use. **[Update: The AIRS results have been replaced by the "Interim method" explained in Chapter III.]**
- In execution, program decisions may be made that change staff-year delivery, yield per return or DET (e.g., special training, diversion of staff to other programs, or pay absorptions).
- The impact of tax law changes on examination yield cannot be gauged precisely.

- Local deviations from the plan take place to accommodate existing staff, recruitment problems, and special and local compliance problems.

Appendix II

Chief Counsel Revenue Estimating Methodology

Background

The accelerated revenue generated by the Office of Chief Counsel is derived from two sources: non-docketed cases closed during the appeals process and docketed cases closed after the taxpayer has petitioned the Tax Court.

Non-docketed Cases

Non-docketed cases are closed by appeals officers. The management information data that support our estimates consist of aggregated data from the forty-five Appeals districts. The basic unit of work in Appeals is a "workunit," which generally contains more than one return. Management information reports reflect data on workunits, categorized by the size of the amount in dispute and aggregated by district and by region. Reports provide data for both the regular program and the tax shelter program. Monthly reports are prepared reflecting the above data for beginning inventory, new cases received, closures and ending inventory.

Each month a revenue report is prepared in Appeals dealing with settlements (closures), categorized by region and by district. These summarize revenue from the regular program (covering both the cases in which the amount in dispute is under $100,000 as well as those over $100,000) and the tax shelter program. For closures, the amount of tax and penalties recovered by settlements is divided by the amount in dispute to derive aggregate recovery rates.

Docketed Cases

Docketed cases are closed by appeals officers and attorneys. The management information data that support our estimates consist of aggregated data from the fifty-three Counsel districts. The basic unit of work in Tax Litigation is a "docket," which generally includes several returns but may differ from the way workunits are compiled in Appeals. Management information reports reflect data on dockets, categorized by the amount in dispute (although these

categories differ from Appeals' dollar categories), and are aggregated by district and by region. Reports provide data for both the regular program and the tax shelter program. Monthly reports are prepared reflecting the above data for beginning inventory, new cases received, closures and ending inventory.

The actual accelerated revenue (tax and penalties) recovered on closed dockets is reported monthly by district, region, case size and for the regular and the tax shelter programs. The amount recovered is divided by the amount of tax and penalties in dispute to derive aggregate recovery rates for all case sizes and programs.

Revenue Projections

In FY87 and FY88, Counsel received budget increases to accelerate the closing of additional tax shelter cases and large cases—the two categories of cases that account for most of the revenue recovered. While we project revenue for all Counsel closings for internal purposes, the primary focus for budget purposes is on the additional enforcement revenue recovered by our two initiatives.

The first step in projecting revenue is to project the number of closures for the fiscal years in question. This is accomplished by multiplying the number of appeals officer and attorney staff years (available in the most current budget document—Treasury, OMB or Congressional) by the most recent year's actual production rate (closures per staff year). Closures are computed separately for the tax shelter and large case programs, with all other closures designated as "base" program.

Once the number of closures is determined, the next step is to project revenue. To do this, we use the most recently completed fiscal year's actual average recovery rates for tax and penalties relating to the base program, the tax shelter program and the large case program. The actual average recovery rate (unless there is a large deviation from previous fiscal years) is multiplied by the projected number of closures to estimate revenue for both the base program and initiatives for the year in question.

We deduct from the revenue estimate for any given year the "base" revenue from FY86 (since this was prior to

the initiatives) in order to determine the *net* additional revenue for the year in question. The *net* additional revenue for the initiatives is then reduced by 20 percent to take into account presumed productivity improvements in the "base" (due to various non-staff factors, including increased automation).

Since there is no mechanism in place in Counsel to accumulate actual interest, we estimate interest on the adjusted net additional revenue.

Appendix III

IRP Revenue Estimating Methodology

Background

Revenue estimates for the Information Returns Program (IRP) Underreporter (UR) Program are made using a computer model. In addition to revenue projections, the model provides a yield-to-cost ratio for each category of UR case (e.g., underreported wages with potential tax due of $100-199, underreported dividends of $200-499) and is used to indicate categories with too low a probable yield ratio to be worked. The model can also be used for ad hoc cost estimates or projections based on special circumstances or assumptions.

Description of the Database

Processed Case Statistics

The foundation of the model is a set of detailed statistics reflecting results of the most recently completed tax year cycle. The current database is composed of results from tax year 1983—from both tax returns and information returns.

The statistics indicate for each category the number of cases reviewed by tax examiners, the number of notices (CP2000) sent to taxpayers (including the proposed tax adjustment), response/no response rates, agreement rates, no change rates, referrals to examination for further correspondence or field office interviews, statutory notice rates, etc. From these statistics, flow rates are derived. The example below reflects actual flow rates for representative categories and activities. The percentages shown are of cases screened—not of the preceding activity.

Average assessment and refund rates are also used for each category and reflect tax adjustments made after the initial notice, after the statutory notice, or after follow-up by Examination personnel. For the example below, the average

amount of tax assessed following the initial notice was $388 for the wage cases and $1,548 for the interest cases.

Flow Rates for Representative IRP Activities and Categories of Underreporting

Category	Activity				
	Cases Screened	Notices sent	Taxpayer Responses	Statutory notices	Tax assessed
Wages, $200-499	100%	63.2%	36.1%	27.0%	22.4%
Interest, $1.3K-2.0K	100%	53.2%	46.4%	6.2%	25.7%

Costs

The database also includes average processing times for each activity. For example, the time tc manually screen cases is about 288.5 staff-hours (at $8.38 per hour) per thousand cases reviewed and the time to review taxpayer responses to the CP2000 is about 345.0 staff-hours (at $8.38 per hour) per thousand responses. The average does not vary within an activity for different categories of cases.

Costs do not include servicewide overhead such as internal audit, taxpayer service, space and housing, etc., nor is the cost of collecting delinquent accounts or the initial cost of processing information returns filed by payers included. Only the direct cost (including training, supervision and leave) of resolving discrepancy cases is reflected in the model.

Structure

Currently, 155 categories of cases and 15 activities are modeled. Eleven of these activities are currently modeled in Returns Processing (RP) and four in Examination. Most activities and the cost factors calculated for them represent a composite of related technical and clerical steps. Procedures in the Examination function are not modeled in as much detail as those in RP; however, the Automated Examination System project is beginning to develop expanded action

codes that will, in several years, provide detail similar to that in Returns Processing.

Assumptions

The primary assumption implicit in this model is that future cases will produce the same results as cases in the database base. Similarly, we assume that new types of cases will produce average results comparable to the historical data. No correction has been made for tax law changes or procedural changes because they cannot be broken down to the detailed level necessary for the database. Procedures such as preliminary correspondence for additional information apply to some categories, but not to others, and will produce different results, which cannot be estimated in sufficient detail.

Although new detailed data for TY84 cases have just become available and need to be evaluated, aggregate results for that year were abnormally low compared with 1983 and compared with the on-going TY85 program. We will probably not use the 1984 data for projections. Projected results from the 1985 program appear to be "normal", but we will have to wait until 1989 for complete, detailed data that can be entered into the model's database.

What is Modeled

Since the model is in commercial software (Lotus Symphony), any of the data can easily be modified for ad hoc applications or for tentative "what if" scenarios. Usually, however, we model a targeted volume of cases to be worked (see "Revenue Projections" below). This total volume is distributed by the model to all categories of cases in the database according to the distribution pattern in the most recent inventory of cases.

After the target volume in each category is established, the model calculates the flow of cases through each activity according to the flow rate for each category. The volume of cases in each activity is then multiplied by the processing rate for that activity to calculate the cost in dollars and staff-hours for the category. The volume of cases in each assessment/refund activity is multiplied by the average assessment/refund to calculate yield. After volumes, costs,

and yield are calculated for each category, they are ranked and tabulated for output.

Output

The primary output is a listing of categories reflecting their rank, yield, cost, and major workload estimates accompanied by a cumulative tabulation.

We do not knowingly work cases with yield-to-cost ratios below 5 to 1. However, unforeseen problems (such as erroneous data from payers) inevitably cause poor results in some categories.

New issues, such as reports of sales of securities and commodities, are obviously not reflected in historical data and must initially be worked blindly. We typically sample these in the first few years so we can refine the computerized identification process and see what the results will be. Target volumes for future years presumably will include new issues, which are spread to pre-existing categories for an averaging effect.

Uses and Limitations of Model Output

Revenue Projections

In order to project yields for future years, we estimate a target volume of cases, which is the major variable, based on proposed or base staffing levels and on projected costs, including procedures not reflected in the data.

In this context, related staffing calculations made by the model are only considered to be close approximations. Numerous procedural and organizational changes have recently been made that are not reflected in the database because their effect varies between categories, and we have no method to accommodate them in the detail necessary for the model. For example, beginning with the TY84 cases, we instituted preliminary correspondence prior to the CP2000 for many cases. This major step did not exist in the TY83 program, and was expanded in the 1985 program. We cannot yet attribute this additional cost to specific

best copy available

categories for modeling purposes. In addition, there are several service centers that have consolidated UR processing in RP with no further referrals to service center Examination branches, but the impact has not yet appeared in the data.

Due to the number of issues in the inventory and because of annual software modifications to refine discrepancy case identification, we cannot reliably predict the volume of future inventories. This is aggravated by new issues such as IRA payments and deductions, mortgage interest deductions, and sales of securities, which are more complex than older issues and will require several years to perfect.

We have not made any adjustments to assessment rates reflect changes in tax rates enacted in recent legislation.

Category Selection

When a new inventory of UR cases is produced in May of each year, a model run is made reflecting the actual volume of cases in each category for which data exist. We produce a ranking, which is used to indicate categories of marginal worth. This ranking may be in the same order as that used in the revenue projection, but the volume is set for real conditions. On this basis we determine what categories are below acceptable levels. Casework then begins. For example, cases begun in May 1988 were for 1986 tax returns selected on the basis of TY83 data.

The modeled volume for case selection does not include new issues. New issues are usually subjected to limited sampling. If there are any preliminary data from tests that would indicate what may happen to new case types, these may be modeled separately to estimate costs. Such data are usually limited and not in sufficient detail (e.g., cases between $100-199 potential tax, $200-499, etc.) as is available in historical data.

Appendix IV

Collection Revenue Estimating Methodology

Background

Estimating revenue from Collection's two primary programs, Accounts Receivable (A/R) and Delinquent Returns (D/R), is driven by three primary factors: staff available, workload disposed, and the amount of collections or assessments associated with the workload. The management information that supports our estimates consists of aggregated data from the 10 service centers, 21 ACS call sites and 64 district offices. We do not accumulate data on revenue by individual case, nor do we accumulate workload results by individual employee. We also do not track case results in the aggregate, although we do track a sample of cases on the Collection Research File (CRF). All analysis of historical data and the resulting estimates assume that the aggregated data are internally compatible.

Staff Years

It is important to note that, in the majority of Collection functions, employees are responsible for both A/R and D/R cases. In fact, employees are frequently assigned cases on delinquent taxpayers that involve both delinquent taxes and delinquent returns. The actual number of staff years applied to each program is calculated from national aggregations of individual employees' time reports, which itemize the time spent on A/R and D/R cases separately.

Workload and Revenue Data

In general, the workload data represent the number of cases closed. A/R revenue data include dollars collected from notices (which explain to taxpayers the amounts of tax, penalties and interest due, possibly following some other enforcement action) and Taxpayer Delinquent Accounts (TDAs). D/R data include: dollars assessed on tax returns

secured through Taxpayer Delinquency Investigations (TDIs), including the IRP nonfilers; dollars assessed through Employment Tax Examination Program (ETEP) investigations; dollars assessed on other D/R cases; and the number of delinquent returns secured through these various programs. These data are available by region, district, call site and service center. However, we rely primarily on national aggregates to estimate total revenue for Collection programs.

Delinquent Returns Program

In presenting the D/R program results in the budget, the D/R data are further adjusted to estimate the actual collections from the assessments. Since we do not track cases, the factors used in estimating revenue flow are based on an analysis of the primary source of A/R cases (from D/R or Examination) and data from the CRF as to when collections of D/R assessments occur. For example, one factor captured on balance due accounts on the CRF is whether or not the taxpayer had any prior D/R contact. We are also looking at the timing of collections from balance due accounts that result from Delinquent Returns or Examination activity. We currently estimate that 95 percent of all assessments are collected during the six-year statutory period for collection, based on an analysis of statute-expired reports. We further estimate that most of those collections occur in the first five years. The factors we now use are: 54 percent of the amount collected is collected in the first year; 25 percent in the second year; 10 percent in each of the third and fourth years; and, 1 percent in the fifth year. Now that we have cases on the CRF that are three years old, we are re-examining these timing estimates.

Accounts Receivable Program

A/R revenue derives from two sources: notices and TDAs. One assumption we make in estimating revenue is that the Service Centers will be fully-staffed to handle projected notice volumes. We compute the average collections in the most recent year per first notice issued and apply that average to a projection of notice volume to estimate future notice yield. We do not compute notice yield in terms of collections per staff year. The portion of the revenue attributable to TDAs is more sensitive to staff and productivity and it is this portion that receives more-detailed attention.

The first step in estimating revenue is to estimate the results from the "base" without any increases in staff. We first compute the average number of cases disposed by collection employees in the current year and compare that with historical results. Then we compute the average dollar value of the cases disposed. These factors are then adjusted to take into consideration expected productivity improvements, program changes, changes in the dollar value of cases and changes in the number of new cases entering the inventory. These adjustments are based on historical trends. For example, we expect the dollar value of cases disposed to continue to increase, while the number of cases disposed has remained relatively stable. This generally results in increased yield per staff year.

Basic Estimating Methodology

Data

S = staff applied
D_a = TDAs disposed
D_i = TDIs disposed
C = dollars collected
R = returns secured
A = dollars assessed on TDIs

W = D_a/S (TDA workload disposed per staff year)
X = C/D_a (dollars per TDA disposed)
Y = A/R (assessments per D/R returns secured)
Z = R/D_i (returns secured per TDI disposed)

Assumptions/Projections

P = change in productivity
I = change in average dollar value of assessments
N = change in number of returns per TDI disposition

Calculations

For Accounts Receivable

1. The projected number of TDAs disposed:

$$D_a' = [S \times (W \times P)]$$

2. The projected amount of dollars collected from TDAs:

$$C' = [D_a' \times (X \times I)]$$

For Delinquent Returns

1. The projected number of TDIs disposed:

$$D_i' = [S \times (W \times P)]$$

2. The projected number of returns to be secured:

$$R' = [D_i' \times (Z \times N)]$$

3. The projected amount to be assessed on those returns:

$$A' = [R \times (Y \times I)]$$

Estimating the Effects of a Revenue Initiative

To estimate the effect of additional staff, we use the same basic formulas, but the values for the change in productivity and the change in dollar value are negative. Based on an analysis of an experimental time reporting system, we concluded that new staff produce only 64 percent of the dispositions of experienced staff. On the revenue side, Collection cases are scored by our Resources and Workload Management System (RWMS) according to their potential yield. The highest-scored cases (highest potential yield) are assigned first. Cases that cannot be assigned due to insufficient resources are held in a queue until they can be assigned. We also have the ability to assign cases selectively from the queue for training purposes. Therefore, new staff work lower-scored cases either for

training or because the higher-scored cases are assigned to the experienced staff. After adding new staff to the base, we compute a weighted average for the base in the next year, assuming that new staff are fully productive in the second year.

Glossary of Terms: IRS Enforcement and Taxpayer Compliance

Accounts Receivable: Amounts of outstanding tax, penalty and interest liabilities, which taxpayers report—but do not pay—with their returns, or which IRS has brought to the attention of taxpayers through some form of enforcement activity. Also refers to the function of collecting this liability. (See Collection, RP, Notice, ACS and TDA.)

ACS: *Automated Collection System.* A computerized data and communications system that enables the Collection function to contact efficiently taxpayers with delinquent accounts or delinquent returns (generally after the notice process has run its course), with the objective of expediting payment of the amount due. This is done from several "call sites"—telephone centers that handle both incoming and outgoing calls. Cases not resolved by this process are referred to Revenue Officers. (See Collection, Notice, TDA and RO.)

Adjustment: A proposed correction to a tax amount reported by a taxpayer. This refers to adjustments arising from both Examination and other IRS programs (e.g., IRP and the Math Error Program at the service centers). (See Recommendation.)

Adjustment Notice: The first computer-generated notice to a taxpayer after an assessment is made arising from an examination or other adjustment. It summarizes the assessed tax, penalties and interest that are due, and is the "First Notice" in the Accounts Receivable notice process. (See Notice.)

AES: *Automated Examination System.* A computerized system that will enable examiners to process their work more quickly. It will include quick access to tax law information and will automate much of what is now done manually.

Agreed Case, Agreed Amount: An examined case in which the taxpayer does not dispute or appeal the amount of additional tax and penalties recommended by the examiner, in which case the agreed amount is the recommended amount. Note that on some cases, called "partials," the taxpayer formally agrees with part of the recommendation (which is then assessed), but appeals the remainder.

AIMS: *Audit Information Management System.* The major management information system kept by the Examination function to manage their workload and monitor their yield. Data are kept on an active computer file for only a few years, and are thereafter available only on microfiche in the form of standard tables.

AIRS: *Audit Integrated Reporting System.* A database that Examination uses to track the history of the cases they examine—all the way through the appeals and collection stages. The first study tracked for 8 years examinations closed in FY72, and is the current basis for estimating from Examination recommendations the amounts assessed and eventually collected. AIRS also provides data on the timing of collections. A study is under way to correct problems with the AIRS programming that became apparent in subsequent years.

Appeals: The process through which taxpayers seek an administrative settlement when they dispute the amount of additional tax and penalties proposed by some enforcement activity (usually an audit). The result of the appeals process is generally an assessment of additional tax, penalties and interest, the tax and penalties component of which may range from zero to the full amount in dispute. Appeals is also the name of the IRS activity that attempts to settle these disputes. It is under the jurisdiction of the Chief Counsel. (See Tax Litigation.)

Applied Time: (See DET.)

A/R: (See Accounts Receivable.)

Assessment: The dollar amount of a taxpayer's tax, penalty and interest liability. By far the greatest amount of assessments are self-assessments made by the taxpayers themselves when they file their returns. (See Voluntary Compliance.) Assessments also arise from enforcement activities. Such amounts are established by the enforcement function (such as Examination, IRP or Delinquent Returns) if the taxpayer does not dispute it (see Agreed Case and Default Assessment), or by Appeals (or the courts) if he does dispute it. In the aggregate, the assessed amount of tax and penalties arising from enforcement is generally less than the amount initially proposed. However, when interest is added to the assessment, the aggregate amount may exceed the recommended tax and penalties. (See Appeals, Recommendation and Interest.)

ASTA: *Alternative Strategies for Tax Administration.* An enforcement program initiated in 1981 to increase tax return corrections (where necessary) without labor-intensive examinations. The ASTA program makes use of computers to compare selected taxpayer information from various data files (from IRS and other federal and state agencies) in order to identify those who may not have complied with particular provisions of the Tax Code, and then to correspond automatically with those taxpayers. Unlike the DATC program, ASTA monitors single-year issues (e.g., checking for dependents being claimed as exemptions on more than one return, and checking whether taxpayers who claim deductions for noncash charitable contributions have properly substantiated their claims). (See DATC.)

Audit: Generally considered synonymous with an examination. Many examinations focus on selected issues that seem questionable on a return and do not constitute an audit of all facets of the return. A TCMP examination, however, is such an audit, in that it systematically examines all information on the return, as well as relevant records. (See Examination, Issue, Contact and TCMP.)

Audit Class: An audit class or examination class is a group of returns that is believed to have fairly homogeneous compliance characteristics. Classes are defined for various administrative purposes (including resource allocation and DIF development), and form the basis for categorizing work in the field. The returns of individuals are classified as business or non-business. Non-business returns are further classified by type of return (e.g., Form 1040 vs. Form 1040A) and by size of Total Positive Income (TPI). Business returns are further categorized by type of business (farm or nonfarm) and by size of Total Gross Receipts (TGR). Corporate classes are defined by the gross value of the corporation's assets, as reported on their balance sheets.

Audit Coverage Rate: (See Coverage Rate.)

Avoidance: Tax avoidance is a form of taxpayer behavior that involves his arranging his transactions so as to minimize his legal tax liability. Examples include planning the timing of his income or expenses, and taking advantage of legal tax shelters or "loopholes." Tax avoidance is not illegal. (See Evasion.)

Base Revenue, Base Staffing: Generally considered as all enforcement revenue or enforcement activity not attributable to a revenue initiative. The term is used in two ways:

(1) Everything that would happen (or would have happened) in a particular year if no new initiative is (or had been) conducted in that year. By this definition, the staffing and revenue projected for (or realized in) the year that are attributable to initiatives begun in prior years are counted as part of the base.

(2) The general trend of enforcement receipts implicit in IRS data on total receipts. Significant departures from this trend (such as revenue initiatives or tax law changes) could be estimated separately and added to projections of this base trend. By this definition, the revenue projected for a particular year that is attributable to an initiative conducted in a prior year is *not* considered part of the base—at least until the revenue arising from that initiative is sufficiently reflected in the overall receipts data to change the trend.

(See Initiative, Revenue Estimates and Current Service Estimates.)

BMF: *Business Masterfile.* The IRS management information system that tracks tax transactions of businesses. These transactions include voluntary tax payments, enforcement-related assessments and payments, etc. BMF is sometimes used as a short expression for the word *business.*

Business: Generally a profit-seeking tax entity other than an individual (e.g., corporations, sole proprietorships, and farms). Note that individuals report their business income (e.g., from sole proprietorships, farms, partnerships, or rental property) on their individual tax returns (which are monitored on the IMF), but those businesses also file tax returns and pay employment taxes (which are monitored on the BMF).

CARS: *Collection Activity Reporting System.* One of the major management information systems of the Collection function. The reports from this system provide field managers with timely and reliable information to help plan, budget and evaluate their operations and programs. The reports cover activity in such categories as TDAs, TDIs, installment agreements and illegal tax protesters, and provide monthly and cumulative results.

CBFM: *Collection Budget Formulation Model.* A planning and revenue estimating model being developed by the Collection function.

CAWR: *Combined Annual Wage Reporting* Reconciliation Program. An enforcement program that seeks to reconcile discrepancies between the information received by the Social Security Administration on W-2s and W-3s and information IRS receives from employers on employment tax returns. Some of the discrepancies have income tax consequences.

CEP: *Coordinated Examination Program.* A special Examination program under which several related returns—usually of a large corporation and related domestic and foreign entities—are audited together. These examinations are generally conducted by teams of RAs, and usually generate the highest yield per return in terms of recommended additional tax and penalties.

Claims: Claims for refunds not associated with the original return (e.g., on an amended return). On those which are audited by Examination, the amount that is claimed but not refunded (as a result of an audit) is included in Examination's yield. (See Refund and Overassessment.)

Class: (See Audit Class.)

Collection: The IRS function responsible for collecting outstanding tax, penalty and interest liabilities from taxpayers—usually arising from delinquent accounts or delinquent returns. For delinquent accounts, this responsibility usually begins some time after the First Notice stage, and includes telephone contacts with taxpayers (from ACS call sites), and personal contacts by revenue officers (ROs). However, Collection monitors and projects enforcement revenue paid during the notice process as well. For delinquent returns, the Collection function seeks to identify and secure returns that should have been filed, usually resulting in the collection or refund of tax. (See Accounts Receivable, Delinquent Return, RP, Notice and ACS.)

Collection Status: Describes a module (taxpayer's return) in terms of the level(s) of enforcement action taken by Collection to collect amounts that have been assessed. Statuses include notices, TDAs, deferrals, and installment agreements. With each change to collection status, the affected module is coded with the identification and date of the new status. (See CYR, Notice, TDA, Deferral and Installment Agreement .)

Compliance: (See Voluntary Compliance.)

Contacts: Sometimes used to refer to any enforcement-related contact with a taxpayer, it usually refers to Examination contacts from service centers—typically in the form of computer-generated letters. (See Audit.)

Cost: Enforcement costs are comprised primarily of the salaries of enforcement personnel, but also include the overhead costs of administering the function in question and the related costs incurred by support and follow-on functions. For example, if Examination were to hire a significant number of of RAs, the cost of fielding them would include the cost of support activities in Human Resources (personnel) and the follow-on activities of Appeals and Collection in processing the additional work. (See Support and Follow-on.)

Counsel: Short for the IRS function that reports to the IRS Chief Counsel. The Counsel programs that deal with enforcement cases are Appeals and Tax Litigation.

Coverage Rate: The percentage of returns filed that are examined by the IRS for accuracy. Examination reports separate coverage rates for each class of returns. Ideally, the coverage rate would be calculated using the number of audits conducted from among the returns filed in one particular period—either a fiscal year or a tax year. In practice, Examination divides the number of audits *closed* in a given fiscal year (e.g., FY88) by the number of returns filed in the *previous* calendar year (CY87 for this example).

CP2000: A computer-generated notice to a taxpayer arising from the IRP underreporter program, proposing an additional tax liability on unreported income that was identified from information returns. If the taxpayer does not respond to this letter (by agreeing, appealing, or supplying additional information) within 30 days, he is sent a statutory notice. The CP2000 is equivalent to the 30-day letter arising from an examination. (See IRP, 30-day Letter and Statutory Notice.)

CRF: *Collection Research File.* An automated system for extracting information from the masterfiles (IMF and BMF) on a regular basis for samples of enforcement cases. It is used to track the progress of TDAs, notices, installment agreements, etc. The tracking capability of the CRF is somewhat analogous to Examination's AIRS program.

Current Service Estimates: Revenue estimates (compatible with the Office of Management and Budget's Current Service Outlays) based on the assumption that all current services (e.g., by the IRS) are maintained. This includes all services that are authorized or implied by enacted appropriations or continuing resolutions, as modified by administrative actions, anticipated to be in place before the end of the current fiscal year.

CY: *Calendar Year.* January 1 - December 31. For most individuals, this is also their tax year (see TY). It is the time period generally used to monitor the number of individual tax returns filed.

CYR: *Collection Yield Report.* A report that tabulates the amounts of tax, penalty, and interest that are credited to accounts on the masterfiles (IMF, BMF, and IRAF) after the accounts are in collection status. An instrument for measuring Accounts Receivable yield, the report may also include corrections to the masterfile for payments credited to the wrong account. (See Collection Status and Yield.)

DATC: *Deferred Adverse Tax Consequences.* A computer-based enforcement program that tracks certain reported taxpayer transactions over time to uncover possible violations of specific tax provisions. DATC projects focus on Tax Code provisions that permit taxpayers to defer taxes, subject to various limitations or recapture requirements if certain subsequent actions occur. For example, one project reveals whether a taxpayer claiming a one-time capital gains exclusion on the sale of a home had claimed the exclusion before. DATC is similar to ASTA, except that it tracks information over time. (See ASTA.)

Default Assessment: An assessment of tax, penalty and interest that is made if a taxpayer does not respond to a statutory notice within 90 days. (See Assessment and Statutory Notice.)

Deferral: An Accounts Receivable status after the notice process, for cases with assessments below specified levels. These accounts are not assigned to ACS or field revenue officers. Some of these amounts are eventually collected, however—such as by offsetting a refund for a subsequent year, combining a deferred amount with an amount due on a subsequent year (making it worthwhile for Collection to pursue them together), or receiving payment from the taxpayer without further enforcement effort. (See Collection Status.)

Delinquent Account: (See Accounts Receivable and TDA.)

Delinquent Return: A return that should have been filed, but was not—usually having a tax balance due or entitled to a refund. These are identified in two major ways: from computer records that identify a taxpayer as a "stopfiler" (one who filed in previous periods, but not in the present one), and from information returns that show taxable earnings for a taxpayer who did not file a return. Delinquent Returns (sometimes abbreviated D/R) is the name of the program in Collection that focuses on nonfilers. (See TDI, Nonfiler, Stopfiler and IRP.)

DERS: *Direct Enforcement Revenue Study.* A comprehensive report generated monthly from the masterfiles that summarizes the amount of tax, penalties and interest that is collected as a direct result of IRS enforcement activities.

DESY: *Direct Examination Staff Year.* A full staff year applied directly to the examination of tax returns. Each staff year of total time produces roughly half of a DESY. (See DET and Staff Year.)

DET: *Direct Examination Time.* Time applied directly to the examination of tax returns, measured in hours. There are between 2,000 and 2,016 hours of DET per DESY, depending on the year. (See Staff Year and DESY.)

Detect: To discover noncompliance in the process of examining a return. This usually refers to noncompliance in the form of unreported income, but it could also refer to overstated offsets to either income or tax. It is generally understood that examiners do not detect all noncompliance—even in the course of thorough TCMP examinations.

Deterrence: The extent to which taxpayers comply with the tax laws and regulations because they fear being caught in noncompliance and because they fear the possible consequences of being caught. This is undoubtedly not the only reason taxpayers comply, however. (See Voluntary Compliance and Indirect Effect.)

DIF: Short expression for *Discriminant Function*—the result of a statistical procedure that IRS uses to identify the tax return characteristics most likely to be found on returns which, if examined, would result in a tax change (either up or down). The intent is to discriminate between cases with the highest tax change potential and those likely to result in no (or little) change upon examination. (Examination seeks to minimize the number of no-change cases actually examined.) Each return is given a DIF "score" during processing (according to the relevant DIF function, or formula). This score is one of the primary sources of information that Examination uses to select returns for audit (with the highest scores being selected first). DIF development is one of the primary purposes of TCMP. Separate DIF formulas are developed and applied for each individual income tax class and for most corporate classes. (See Audit Class.)

Direct Effect, Direct Yield: The additional revenue (or yield) that results directly from IRS enforcement efforts—the actual amount of tax, penalties and interest (net of refunds) that is eventually collected by these efforts. (See Indirect Effect and Yield).

Disposition: The closing of a case in Appeals/Tax Litigation or Collection, or the final outcome of a closed case.

Docketed: The category of unagreed cases that is processed by Tax Litigation rather than by Appeals. These cases are generally settled either in court or in the negotiations that lead up to trials. (See Tax Litigation.)

Document Matching: Comparing what taxpayers report on their returns with information returns supplied to the IRS (by employers, banks, and other third parties) to identify unreported income, overstated deductions, nonfilers, and other cases of noncompliance. This is done by comparing computer files. (See IRP.)

D/R: (See Delinquent Return.)

EMIS: *Enforcement Management Information System.* A database consisting of detailed information about enforcement cases worked in all of IRS' enforcement functions—including key amounts, dates, codes, etc. Launched in 1990, EMIS is being phased in over several years, and will eventually become the basis for both reporting actual enforcement accomplishments and projecting future yields.

Enforcement: Generally refers to all IRS activities that seek to identify and collect tax liabilities that are not reported or remitted voluntarily by taxpayers. The major activities involved in establishing correct tax liabilities are Examination, IRP,

Appeals, Tax Litigation, and Collection's Delinquent Returns Program; RP and Collection are responsible for collecting enforcement-related payments. Other enforcement programs include DATC, ASTA and CAWR. In addition, other IRS functions (such as Criminal Investigation and Employee Plans/Exempt Organizations) are involved in enforcing the tax laws, but to the extent that their activities produce enforcement revenue, this is included in the yield of other functions (primarily Examination). The term *enforcement revenue* may be used broadly to include any tax, penalties or interest payment (or refund) that would not have been received (or paid) in the absence of an IRS effort to seek it. This includes payments arising from such activities as math error verification in the service centers and the notice process that seeks payment of tax reported on—but not remitted with—returns (the "remittance gap"). Note, however, that Collection often uses a narrow definition of the term, referring only to activities after the notice process. (See Voluntary Compliance and Noncompliance.)

ERAM: *Enforcement Resource Allocation Model.* A budget model developed by IRS to help estimate costs, workloads and revenues associated with proposed increases or decreases in IRS staffing or budget authority. The model is built on the separate planning models of the various enforcement functions, and incorporates several simplifications to make it more manageable. Its purpose, therefore, is not to make official (or "accurate") estimates, but rather to illustrate the general magnitude of additional costs, workloads and revenues, sufficient to answer "what if" questions and to identify scenarios worth pursuing in more detail. Because it is based on the present functional models, ERAM uses the FY72 AIRS results for projecting collections arising from examinations (See PBM.)

Evasion: Intentional noncompliance. In contrast with tax avoidance, evasion is illegal. It involves deceit, subterfuge, camouflage, concealment, some attempt to color or obscure events, or making things seem other than they are. (See Avoidance, Noncompliance, Fraud and Negligence.)

Eventual Collections: The amount of an enforcement assessment (including tax, penalties and interest) that is eventually received in payment. Overall, this may be slightly less than the total assessment (because some debts are negotiated down or never paid), or slightly greater (because additional penalties and interest may accrue during the collection process). Although most of the amount that will eventually be collected is generally received within the first two years following assessment, amounts may also be received five to eight years after assessment. (See AIRS.)

Examination, Exam: The term most people use to refer to an IRS audit of a taxpayer, though most of them are not complete audits of all return aspects, since they focus on only a few "issues" that seem questionable to the IRS (see Audit). The term also refers to the Examination function of the IRS, which performs these examinations.

First Notice: (See Adjustment Notice.)

Fiscal Year: (See FY.)

Follow-on: An IRS activity that follows a previous enforcement activity in bringing a case to final resolution. For example, Accounts Receivable is a follow-on activity with respect to Examination and Appeals, and Appeals is often a follow-on activity with respect to Examination. Follow-on activities (and costs) are accounted for when planning enforcement initiatives.

Fraud: Intentional deception by misrepresentation of facts (or silence when good faith requires expression) that results in material damage to someone else who relies on the information. Fraud involves a state of mind that can be determined by things the person does or says; they are assumed to be the natural consequence of the individual's intention. Tax evasion is the illegal reduction of taxes through fraud. By definition, fraud and evasion are inseparable in tax administration. (See Evasion.)

Function: An IRS program area falling under the jurisdiction of an Assistant Commissioner (e.g., Examination or Collection). Not all functions are enforcement-related (e.g., Inspection and Computer Services).

FY: *Fiscal Year.* The government's budget year, which begins on October 1. For example, FY88 began on October 1, 1987 and ended on September 31, 1988. Most enforcement-related statistics are kept on a fiscal year basis.

IMF: *Individual Masterfile.* The IRS management information system that tracks all tax transactions of individuals. These transactions include voluntary payments, enforcement-related assessments and payments, etc. IMF is sometimes used as a short expression for the word *individuals.*

Indirect Effect, Indirect Revenue: The change in revenue arising from a change in voluntary compliance that, in turn, results from a change in enforcement efforts. In contrast with direct yield, the indirect effect is not observed separately, and can only be estimated. It is widely agreed that increasing enforcement efforts will cause the general taxpaying population to become more compliant in voluntarily paying their tax obligations in subsequent years. Note that voluntary compliance is probably determined by many factors in addition to the deterrent effect of IRS enforcement. The indirect effect is comprised of the "subsequent year effect" exhibited by those who are contacted by an IRS program and the "ripple effect" exhibited by those who are *not* directly contacted by the IRS, but who base their

compliance—at least in part—on information about IRS enforcement that they receive indirectly (such as from others who had been contacted by IRS, or from the news media). (See Voluntary Compliance, Deterrence, Ripple Effect, Subsequent Year Effect and Direct Effect.)

Initiative: A budget concept referring to authorization given to increase enforcement staffing significantly (relative to "current services") for the purpose of increasing total enforcement revenue. Initiatives may be authorized to offset projected outlays (even if unrelated to the IRS) with enforcement revenue.

Installment Agreement: A written agreement between IRS and a delinquent taxpayer that provides for periodic payments to satisfy an outstanding tax liability. In addition to Collection, Taxpayer Service has the authority to approve these agreements. (See Collection Status.)

Interest: The extra amount of money payable because of a delay in paying any tax or assessed penalty liability. Interest accrues from the date the return was due (generally April 15 for individuals) until the tax and penalties are fully paid (excluding any time beyond 30 days from the date of agreement that it takes to issue the adjustment notice, and excluding a grace period of 10 days from the date of the adjustment notice if payment is made within that period). Interest does not accrue on penalties (such as the failure to pay penalty) unless they have been assessed.

Inventory: The group of enforcement cases that have been identified by a particular function (or have been transferred to it), but which the function has not yet completed. (Inventory is sometimes restricted to refer only to those cases that the function has not yet begun to process).

IRAF: *Individual Retirement Accounts File.* Similar to the IMF and BMF except that the system tracks tax transactions associated with individual retirement arrangements. These transactions include voluntary payments, enforcement-related assessments and payments, etc.

IRP: *Information Returns Program.* The IRS program that matches information about taxpayers' income and expenses (sent to IRS by employers, banks, and other third parties) with tax return information (from the masterfile). These information returns are increasingly received on computer tape, or transcribed to tape, for computer-based matching efforts. IRP is divided into the Nonfiler Program (which focuses on those who do not file returns), and the Underreporter Program (which focuses on those who report less income than is shown on their information returns). IRP refers cases to Examination, Appeals and Collection. (See Document Matching.)

Issue: An item that IRS investigates during the course of an examination. Operational examinations typically investigate selected issues, while TCMP examinations investigate every item on the return.

Litigation: (See Tax Litigation.)

Masterfile: An IRS management information system that tracks tax transactions of taxpayers. These transactions include voluntary tax payments, enforcement-related assessments and payments, etc. The two major masterfiles are the IMF (for individual income tax) and the BMF (for business taxes).

Module: Reflects all transactions on the masterfile that are associated with a specific tax period and type of tax (e.g., income, employment or excise). A taxpayer's account can have several modules present at one time.

Negligence: A taxpayer's failure to make a reasonable attempt to comply with the tax laws, or careless, reckless or intentional disregard for the tax laws. (See Noncompliance and Fraud.)

Noncompliance: Any failure to conform with the tax laws and regulations—concerning the amount of tax paid, how it is calculated, or the manner in which the necessary procedures (such as the timing of filing and payment) are followed. This definition includes not only underpaying tax, but also overpaying tax. (See Voluntary Compliance.)

Nondocketed: The category of unagreed cases that is processed by Appeals rather than by Tax Litigation. (See Appeals.)

Nonfiler: A taxpayer who should file a return, but does not. Nonfilers may owe taxes, have no additional tax liability, or may be due a refund (which can be claimed only by filing). There are two major nonfiler enforcement programs: the IRP Nonfiler Program (which identifies people with no record of previous filing who receive income, but do not file returns), and Collection's Stopfiler Program (which identifies those who had filed returns in the recent past, but not in the current period). Beginning in TY87, these two programs have been combined for individuals. There is not yet an operational IRP nonfiler program for businesses. (See Stopfiler, IRP.)

Notice: A written (usually computer-generated) communication with a taxpayer concerning outstanding tax, penalties and interest. Prior to an assessment, notices seek confirmation or other responses from the taxpayer. (See 30-day Letter,

CP2000 and Statutory Notice.) An adjustment notice is sent when an assessment is made. (See Adjustment Notice.) This is the "First Notice" in a series of standard Accounts Receivable notices that are sent to encourage the payment of assessed liabilities as soon as possible. There is a similar notice sequence in the Delinquent Returns program. Notices are generated directly from the relevant service centers. They are generated by the Returns Processing and Accounting Division, but the enforcement statistics related to them are generally maintained by Collection. By far the largest portion of accounts receivable are paid by taxpayers in the early stages of the notice process—suggesting an interesting middle ground between pure voluntary compliance and traditional notions of enforcement. (See Collection Status.)

Operational: Pertaining to the normal operations of an enforcement function, as opposed to a special study or program (like TCMP).

OTA: *Office of Tax Analysis.* The office in the Office of the Secretary of the Treasury that is responsible for (among other things) projecting receipts and for estimating the revenue effects of tax law changes and enforcement initiatives.

Overassessment: The amount that a taxpayer overpays his tax liability, as revealed by an audit or IRP investigation. When such cases are found, the taxpayer is refunded the amount of the overpayment. Total examination yield is net of these refunds, but some Examination statistics include only *positive* recommendations or assessments.

PBM: *Programmatic Budgeting Model.* A spreadsheet-based set of formulas that enable IRS to coordinate enforcement revenue estimates that are developed by the various functions. It eliminates double-counting of revenue by two or more functions, measures revenue on a consistent basis (actual dollars collected by year of collection), and accounts for all support and follow-on costs. It was a precursor to ERAM. (See ERAM.)

Penalty: A fine that a taxpayer must pay if he is found to be noncompliant with the Tax Code in one of many ways. Penalties can arise from either the substance of what a taxpayer reports or the process (e.g., timing) he follows. There are lump-sum penalties and penalties that are proportional to the amount of additional tax due.

Plan: A detailed statement of the operational objectives of a particular function for a given fiscal year. The plan may project the number of cases to be worked, the number of people required to work them, or the anticipated rate at which work is to be accomplished—all broken down by relevant programs or classes of activity, and by district.

Posting Cycle: The number of the week in the calendar year during which IRS's Martinsburg Computing Center posts a payment or credit to a taxpayer's account on the masterfile.

Presence: The extent to which IRS enforcement activities take place among a particular group or class of taxpayers. IRS presence is not limited to audit coverage; it also includes service center contacts, Collection contacts, and other IRS operations. (See Audit Coverage Rate.)

RA: *Revenue Agent.* A highly-trained type of examiner. RAs generally have accounting degrees and examine the most complicated returns. (See TA and TE.)

Receipts: Payments of tax, penalties or interest; includes both voluntary payments and enforcement-related payments. (See Revenue.) (The term is also sometimes used to refer to the cases "received" by one program from another within a particular time period.)

Recommendation: The amount of additional tax that an examiner concludes (from his examination) should have been paid, together with any associated penalties. If the taxpayer agrees with this recommended amount, it is assessed, along with any related interest; if not, he may appeal it. (The recommendation could also be negative—a proposed refund to the taxpayer. See Overassessment.)

Recovery Rate: The percentage of the dollar value of aggregate unagreed recommended tax and penalties that is assessed after the appeals/litigation process—often reported for groups of cases in addition to the entire program. (See Sustention Rate.)

Refund: An amount returned to a taxpayer because his prepayments during the year (through withholding and estimated tax payments) exceeded his ultimate tax liability. Taxpayers normally claim their refunds when they file their returns. If someone is subsequently audited and found to have paid too much, the amount he is refunded is called an overassessment. If someone claims a refund on an amended return, the return may be audited before being paid. Any amount on such claims that is not refunded is included in enforcement revenue. (See Overassessment and Claims.)

Remittance Gap: (See Tax Gap.)

Revenue: Generally synonymous with "receipts," but usually refers to payments arising from changes in tax laws, regulations, or tax administration (e.g., more enforcement). (See Receipts and Yield.)

Revenue Agent: (See RA.)

Revenue Estimates: Projections of revenue gains or losses arising from proposed or actual changes in laws, regulations or their administration.

Revenue Initiative: (See Initiative.)

Revenue Officer: (See RO.)

Ripple Effect: The indirect effect of enforcement on the voluntary compliance of people not contacted directly by that enforcement; also refers to the effect on revenues of this change in compliance. The "ripple" presumably takes place as those who *are* contacted by the IRS describe their experiences to others—in the neighborhood, at social gatherings, at work, etc. The term is often limited to the ripple effect of audits. This does not include the "subsequent year effect" exhibited by those who *are* contacted by IRS enforcement programs. (See Indirect Effect, Deterrence and Subsequent Year Effect.)

RO: *Revenue Officer.* The principal tax collecting agent in the Collection function. ROs have authority to file liens and initiate notices of levy (like a garnishment), negotiate payment terms, and to seize property, if necessary, to collect delinquent assessed tax debts.

RP: *Returns Processing.* The IRS function (formerly the Returns Processing and Accounting Division—RP&A) responsible for developing all tax return processing systems. RP also issues enforcement-related notices to taxpayers. (See Notice.)

RWMS: *Resources and Workload Management System.* The system in Collection that ranks ("scores") cases on the basis of their expected yield (combining both the amount due and the probability of collecting it). RWMS is used in Collection similar to the way DIF is used in Examination.

Source: (As used by Examination) The principal reason that Examination uses in selecting a particular return for examination. Examples: DIF, tax shelter, TCMP, other.

Source: (As used by OTA) A type or category of tax. Examples: individual income tax, corporate income tax, excise tax, estate tax.

Staff Year: The amount of paid time per year per full-time employee (excluding overtime). For budget purposes, a staff year includes paid holidays and leave time,

and is approximately 2,080 hours (40 hours per week times 52 weeks). The term is also used operationally tc refer to the maximum amount of on-duty time per employee per year (i.e., excluding holidays), and ranges from 2,000 to 2,016 hours, depending on what day the year begins on, and whether or not it is a leap year.

Statute: Short expression for the *Statute of Limitations*, generally referring to the length of time within which IRS must take some action. For example, the statutory period in which an additional tax must be assessed is normally three years, and the period in which IRS must collect unpaid tax is six years from the assessment date, unless otherwise extended.

Statutory Notice: The second (and final) letter sent to a taxpayer explaining an examination recommendation or other proposed adjustment. Sometimes called the "90-day letter" (because the taxpayer then has 90 days to file a petition with the Tax Court if he wants to seek a redetermination of the deficiency), it is sent if the 30-day letter (in the case of an examination) or the CP2000 (in the case of the IRP underreporter program) does not evoke a response from the taxpayer (agreement, appeal or additional information). If the taxpayer does not respond to this notice, the proposed amount is assessed. (See Notice, Default Assessment, 30-day Letter and CP2000.)

Stopfiler: A taxpayer who does not file a return after having done so in the previous period(s). Collection has a program to identify such taxpayers (often businesses) and to encourage them to file valid returns for the present period, if required. Beginning in TY87, the Stopfiler Program for individuals has been combined with the IRP Nonfiler Program. In addition, individual stopfilers are now sent letters by the "Reminder-to-file" Program soon after missing a filing deadline, encouraging them to file their returns soon, if required. This is an educational program that does not necessarily lead to further Collection contact. The business Stopfiler Program has remained unchanged. (See Nonfiler.)

Subsequent Year Effect: The change (presumably improvement) in a taxpayer's voluntary compliance in the years immediately following contact with an IRS enforcement activity. This is not monitored, and can be estimated only on the basis of limited experience or special studies. The subsequent year effect is one type of indirect effect. It is not a direct effect of IRS enforcement because it is a change in voluntary compliance. Subsequent improvements to compliance could include both voluntarily reporting a higher portion of one's true tax liability, and cooperating more fully with the collection process in the event an underpayment is detected by the IRS. (See Indirect Effect and Ripple Effect.)

Support: IRS administrative activities required for the proper functioning of enforcement programs. Support activities include personnel and facilities management, and often involve non-enforcement functions. The total cost of an enforcement program includes both support and follow-on costs. (See Cost and Follow-on.)

Sustention Rate: Generally synonymous with *recovery rate*, but some people use it to refer to the percentage of the amount in dispute *on a particular issue* (or on all issues taken together) that is ultimately settled upon in the appeals/litigation process. The example below illustrates the difference between these uses of the term *sustention rate*, and contrasts it with the corresponding recovery rate. Note that the sustention rate is generally different for each issue on the return, and that the aggregate sustention rate is generally different from any of these. Since the recovery rate is a ratio of *tax* amounts, it can be different from the aggregate sustention rate if both income (or deduction) and credit issues are involved, or if different marginal tax rates apply to the adjustments—both of which are generally the case when aggregate rates are calculated for groups of cases, and are often true on single cases. (See Recovery Rate.)

Calculation of Sustention and Recovery Rates for a Single Hypothetical Case

	Issue #1: Deduction Item	Issue #2: Credit Item	Total
A. Amount reported	$1,000	$1,000	
B. Amount recommended by Examination	500	500	$1,000
C. Proposed adjustment [B-A]	500	500	1,000
D. Tax on proposed adjustment [1]	250	500	750
E. Adjustment agreed upon in Appeals	200	100	300
F. Tax assessed on agreed adjustment [1]	100	100	200
G. **Sustention rate** [E/C]	40.0%	20.0%	30.0%
H. **Recovery rate** [F/D]			26.7%

[1] Assuming a marginal tax rate of 50%.

SY: (See Staff Year.)

TA: *Tax Auditor.* An examiner intermediate in training between a revenue agent and a tax examiner. TAs generally examine returns of individuals. (See RA and TE.)

Tax Avoidance: (See Avoidance.)

Tax Evasion: (See Evasion.)

Tax Examiner: (See TE.)

Tax Gap: The **Gross Tax Gap** is the difference between what taxpayers (in the aggregate) should pay in taxes, and what they voluntarily pay on time. The IRS estimates the tax gap on a tax year (rather than fiscal year) basis, broken down by various types of noncompliance (e.g., underreported income, overstated deductions, filers vs. nonfilers, etc.) and by category (individual, corporate, illegal activity, etc.). The **Net Tax Gap** is the Gross Tax Gap minus the portion of the gap that is recovered through enforcement activities. The **Remittance Gap** is the amount that taxpayers report on their returns as being due, but which they do not pay with the returns. The tax gap estimates are based on many sources of information, but particularly on TCMP.

Tax Litigation: The program in Chief Counsel that pursues court settlements of disputed tax adjustments. Cases may be litigated without first following the appeals process, but this is not normal. (See Appeals and Docketed.)

Tax Year: (See TY.)

TCMP: *Taxpayer Compliance Measurement Program.* A special Examination program designed to measure (as best we can) voluntary compliance in the taxpaying population and to serve as the basis for developing audit selection criteria (see DIF). A TCMP survey consists of a stratified probability sample of filed returns (of a particular type—the most notable being the returns of individuals) that are thoroughly audited to check all information on the returns, as well as relevant records that the taxpayers are asked to provide. The examinations reveal understatements and overstatements of income, exemptions, adjustments, deductions and credits. Each TCMP case is statistically weighted to allow IRS to project the results to the entire population. A new survey of individual returns is generally conducted every three years. The corporate survey is limited to corporations with assets of less than $10 million. Other TCMP surveys have been conducted for partnerships, S–corporations, fiduciaries, employee plans, exempt organizations, and individual nonfilers.

TDA: *Taxpayer Delinquent Account.* This is an Accounts Receivable case that has not been settled by the notice process. The case is generally referred to as a TDA after the notice process. (See Collection, Collection Status, Notice and Accounts Receivable.)

TDI: *Taxpayer Delinquency Investigation.* This is a Delinquent Returns case that has not been resolved by the notice process, and is handled by the Collection function. (See Collection and Delinquent Return.)

TE: *Tax Examiner.* The lowest graded Examination technical employee. TEs handle service center Examination contacts. (Collection also employs TEs in the service centers and at ACS call sites.) (See Contact, RA and TA.)

TPI Class: (See Audit Class.)

Training: The training of enforcement staff includes formal classroom instruction, structured on-the-job training and less structured field experience. Trainees do produce enforcement yield in excess of the cost of fielding them.

Transaction Date: In the case of a payment, the date payment is actually received; in the case of a credit, a date determined by the posting cycle.

TY: *Tax Year.* The 12-month accounting period on which taxpayers base their tax calculations. For most individuals, this is the calendar year. For many corporations, this is July 1 through June 30.

Underreported: Not fully reported on a tax return. This generally refers to income. For example, a person's tip income would be underreported if he reported only a portion of tips received. The IRP Underreporter Program seeks to identify underreporting (and unreporting) by matching third-party information documents with tax return information.

Unreported: Not reported at all on one's tax return. For example, a taxpayer may not report any of his cash income derived from selling produce at a roadside stand. It also refers to the taxable income of nonfilers, who do not file the required returns.

VCL: *Voluntary Compliance Level.* Estimated from TCMP for the entire population or for specific groups of taxpayers, as follows:

$$VCL = \frac{Tax(R)}{Tax(R) + UnderstatedTax} \times 100$$

where:

- Tax(R) is tax as reported on the returns (population estimates); and
- UnderstatedTax is the estimated amount of understated tax liability in the population, as suggested by TCMP examinations. Note that overstatements are not included.

VCLs are called "levels" even though they are percentages. Note also that examiners (even in TCMP examinations) cannot uncover all unreported income, so the UnderstatedTax estimated by TCMP is almost certainly too low, resulting in

VCLs that overstate true compliance. The IRS tax gap estimates correct for this. (Note: prior to the 1985 TCMP survey of individuals, VCLs were calculated on the basis of tax *and penalties*.)

VCR: *Voluntary Compliance Rate*. Similar to VCL, but accounts for undetected income and overpaid taxes. It is calculated as follows:

$$\text{VCR} = \frac{\text{Tax reported}}{\text{Tax that should have been reported}} \times 100$$

Note that the tax that should have been reported is sometimes smaller than the tax reported, but in the aggregate, VCRs are generally less than 100%. Note also that the tax that should have been reported is an estimate, accounting for an estimated amount of unreported income that is not detected by the examiners.

Voluntary Compliance: The effort of taxpayers to fulfill their tax obligations under the law; generally refers to the amount of tax they pay when doing so. This is in contrast with *involuntary* compliance, which is the direct result of IRS enforcement activities (see Direct Effect). Note, however, that voluntary compliance reflects **induced compliance** (such as occurs in response to third-party information reporting), **subsequent year effects** on those who have been the subject of IRS enforcement, and the **ripple effects** of IRS enforcement. Many factors influence voluntary compliance. Some of these are measurable (such as IRS enforcement levels) while others are not readily quantifiable (such as complexity of the tax law, perceived fairness, and civic responsibility). (See Deterrence, Indirect Effect, Ripple Effect and Subsequent Year Effect.)

VRP: *Voluntary Reporting Percentage*. Similar to VCR, except that it measures the voluntary compliance in reporting specific items on the tax return (usually income types), rather than tax. It is calculated as follows:

$$\text{VRP} = \frac{\text{Amount reported on return}}{\text{Amount that should have been reported}} \times 100$$

When a VRP is calculated from TCMP examination data only, it will overstate compliance since it will not account for unreported income that goes undetected by examiners. Like a VCR, it includes both positive and negative changes. Note that all of these measures are aggregate percentages; they are not calculated for a single return.

Yield: The monetary outcome of an IRS enforcement activity. This term is used in many different (and incompatible) ways. Although yield is often thought of as the amount of enforcement-related receipts (additional tax, penalties and interest paid by taxpayers pursuant to some enforcement activity), its meaning often depends on the enforcement function to which it refers. For example:

Examination: Yield is measured in terms of the amount of additional tax and penalties *recommended* by examiners (see Recommendation). Note that Examination yield statistics often do not include the amounts refunded to taxpayers when examiners find that they have overpaid their tax liabilities (see Overassessment). The amounts assessed and eventually collected that arise from these recommendations are not measured directly; they are estimated.

IRP, Delinquent Returns, and Appeals/Tax Litigation: Yield is measured in terms of the amount of additional tax, penalties and interest *assessed.*

Accounts Receivable: Yield is the amount of tax, penalties and interest *collected* (actually paid). (Note, however, that the Collection function often includes other amounts in their measures of Accounts Receivable yield—such as corrections to the masterfile when payments had been credited to the wrong account.) (See CYR.)

Notice that there is some overlap in the yield measured by the various enforcement functions. Almost all of the yield from the Appeals and Tax Litigation programs, and some of the yield reported by Accounts Receivable, is first counted as Examination yield. Therefore, the "yields" reported by the various functions cannot simply be added together to calculate total enforcement revenue. IRS budget estimates attempt to adjust for these incompatibilities.

Yield Curve: An estimated relationship between enforcement yield and the level of enforcement activity. It generally refers to the average or marginal yield curves used in the Examination planning model, which are based on TCMP and operational data. An average yield curve estimates the average yield on *all returns* examined, as a function of the audit coverage rate. A marginal yield curve estimates the yield expected on the *next return* as a function of the audit coverage rate. Both average and marginal yield curves generally decline with increasing coverage—reflecting the fact that IRS is usually able select returns for audit that are more profitable to examine on average than are the returns it does not audit. Separate yield curves are developed for most of the audit classes. (See Audit Class and Coverage Rate.)

30-day Letter: The first letter issued to a taxpayer that formally summarizes the results of an examination, and requests a response. Possible taxpayer responses are: he

supplies additional information that may result in a revision of the recommendation; he agrees with the recommendation; or he appeals the recommendation. If the taxpayer does not respond within 30 days, he is sent a 90-day letter (statutory notice). (See CP2000.)

90-day Letter: (See Statutory Notice.)

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